

# **CURRICULUM VITÆ**

**OF**

**MARIA DA GRAÇA MARTINS DA SILVA CARVALHO**

**July 2007**

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## PERSONAL DATA

### Date and place of birth:

9th April 1955, Beja (Portugal)

### Nationality:

Portuguese

### Actual activity:

She acts as Director General (since 2 May 2006) in the Bureau of European Policy Advisers (BEPA) - a Department of the European Commission reporting directly to the President - where she co-ordinates the societal area and she is a Principal Adviser (since 1 April 2006). In this bureau she is personally in charge of the areas of Science, Higher Education, Innovation, Energy, Environment and Sustainable Development. She entered BEPA on 1 June 2005 as a national expert.



### Web page:

<http://mgcarvalho.org>

## ACADEMIC EDUCATION

- 1990 Doctor of Science (Habilitation) in Mechanical Engineering (Technical University of Lisbon).
- 1984 Recognized as equivalent to a Portuguese Doctor's Degree (Technical University of Lisbon).
- 1983 Doctor of Philosophy - Ph.D., Mechanical Engineering (University of London).
- 1983 Diploma of Imperial College of London (DIC).
- 1978 Diploma of Mechanical Engineer, branch of Applied Thermodynamics (Instituto Superior Técnico, Technical University of Lisbon).
- 1972 High School Release Certificate (Liceu Nacional de Beja). Final mark: 18 out of 20.

## POLITICAL CAREER (ACTIVITY AS MINISTER OF SCIENCE, INNOVATION AND HIGHER EDUCATION)

- Over 115 speeches.

## ACTIVITY BY APPOINTMENT OF THE MINISTRY OF SCIENCE AND HIGHER EDUCATION

- Representative in the Board of Directors of the Fulbright Committee from June 2003 to October 2003.
- Representative in the Education Committee of the European Union from February 2003 to October 2003.
- Delegate of the Committee for Scientific and Technological Policy in OECD from December 2002 to October 2003.
- Member of CIAC (Interministerial Committee for Community Matters) from December 2002 to October 2003.

## ACTIVITY AS PRINCIPAL ADVISER OF BEPA - BUREAU OF EUROPEAN POLICY ADVISERS OF EUROPEAN COMMISSION

### 2005

- *Competitiveness and Sustainability*, in CEPI (Confederation of European Paper Industries) Annual Conference, Brussels, 1 December 2005.
- *Building Europe of Knowledge*, in Conference "The Future of Knowledge: Evolutionary Challenges of the 21st Century", World Academy of Art and Science, Zagreb, 19-20 November 2005.
- *The Renewed Lisbon Strategy and the Bologna Process*, in Cerimonia Comemorativa do dia da CESPU (Cooperativa de Ensino Superior, Politécnico e Privado), " Processo de Bolonha um Desafio para a Europa ", Porto, 15 November 2005.
- *Science and EU Decision-making*, in CER Conference (Communicating European Research), Brussels, November 14-15, 2005.

### 2006

- *Estratégia Europeia para a Energia*, in Conferencia Transatlântica sobre Energias Renováveis, Azores, 8-9 December 2006.

- *Agenda de Lisboa e Inovacao*, in the Seminar Wake up with Portugal, "Agenda de Lisboa e Inovacao", Brussels, 28 November 2006.
- *Modernizacao das Instituicoes de Ensino Superior*, in Sessão Solene de Abertura do Ano Lectivo 2006/2007 do Instituto Politécnico de Leiria, Leiria, 22 November 2006.
- *O Livro Verde – Estratégia Europeia para uma Energia Sustentável, Competitiva e Segura*, in the 10<sup>th</sup> Conference Cogen Portugal, " Mercados de Energia", Lisbon, 7 November 2006.
- *Policy Making*, in the Workshop: Sustainability and the Science of Complexity, Brussels, 16 June 2006.
- Debate with Students, in Seminario IV Ciclo de Palestras Testemunhos/Referência, Universidade Lusíada de Lisboa, 2 June 2006.
- *UTL in the European Higher Education*, in I Congresso da UTL - Universidade Técnica de Lisboa, "A UTL no Espaço de Ensino Superior Português e Europeu", Lisbon, 1 June 2006.
- *Ethics and Epidemics*, DG Research Workshop "Globalisation and New Epidemics: Ethics, Security and Policy Making", Brussels, 23 May 2006.

## 2007

- *Cooperação nas Áreas da Educação, Ciências e Tecnologia entre as Instituições Europeias e Angolanas*, Universidade Agostinho Neto, Luanda, 27 June 2007.
- *Estratégia Europeia para a Energia*, in Dia do Departamento de Engenharias e Ciências Naturais da Universidade Lusófona de Humanidades e Tecnologias, "Estratégia Europeia para a Energia", Lisbon, 22 June 2007.
- *Investigação e Inovação*, in Convenção da Universidade de Lisboa, "Reforma do Ensino Superior", Lisbon, 22 June 2007.
- *The Contribution of Education and Training to Social Inclusion and Social Integration*, in Symposium on the Future Perspectives of European Education and Training for Growth, Jobs and Social Cohesion, Brussels, 19-20 June 2007.
- *Markets for Sustainable Construction*, in Second European Forum on Eco-innovation, Brussels, 11-12 June 2007.
- *The Energy Strategy for Europe*, na Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, 3 - 7 June 2007.
- *Contribution of the Renewable Energy Sources in the Azoren Energy Mix-applying the H2RES Model to Terceira Island*, na Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, 3 - 7 June 2007.
- *A GIS 3-D Modelling of MSW Collection with Optimisation of Fuel Consumption*, na Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, 3 - 7 Junho 2007.
- *Waste-to-Energy Island Communities*, na Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, 3 - 7 June 2007.
- *Estratégia Europeia para a Energia*, in Seminário Associação Pensar Global, Movimento Cívico, Porto, 25 May 2007.
- *Inovacao*, in Conferência final do Projecto "Planeamento Espacial Participado na Europa", Barreiro, 23-24 May 2007.
- *European Institute of Technology*, in Assembleia Geral do CLUSTER (Consortium Linking Universities of Science and Technology for Education and Research), Barcelona, 18 May 2007
- *7th Framework Programme*, in Seminário Curso de Introdução ao Empreendedorismo de Base Científica e Tecnológica, " 7º Programa Quadro de Investigação e Desenvolvimento Tecnológico da UE: Oportunidades para Empreendedorismo de Base Científica e Tecnológica", Lisbon, 17 May 2007.
- *EU: Global Perspective on further Priorities and Actions to Improve Capacity-Building in Research Ethics*, in EC Conference, Ethics, Research and Globalisation, Europe and its Partners Building Capacity in Research Ethics, Brussels, 14-15 May 2007.
- *The Energy Strategy for Europe*, in Directors Club Conference "Energy and Beyond", Lisbon, 10-11 May 2007.

- *Estratégia Europeia para a Energia*, in Seminário Internacional “Economia do Hidrogénio e os Desafios da Sustentabilidade”, Associação Portuguesa para a Promoção do Hidrogénio, Vimeiro, 7-8 May 2007.
- *Knowledge Society*, in Conferencia "The Right to and Rights in Education – under the Protection of the Judge Retrospection and Future Perspectives", Bruges, 27 April 2007.
- *Estratégia Europeia para a Energia. Oportunidades e Desafios*, in Conferencia AREAM (Agencia Regional da Energia e Ambiente da Região Autónoma da Madeira), Funchal, 20 April 2007.
- *Energy Policy*, in GeSI Workshop (Global e-Sustainability Initiative), "Applying ICT-Based Solutions to Energy Efficiency Challenges", 31 January 2007.
- *Vantagens Económicas e Competitivas da Aplicação das MTD*, em Sessão de Divulgação “Melhores Técnicas Disponíveis (MTD) no Regime de Prevenção e Controlo Integrados da Poluição (PCIP)” e “Técnicas Emergentes e Candidatas a Melhores Técnicas Disponíveis (MTD) no Regime da Prevenção e Controlo Integrados da Poluição (PCIP) - IST, Lisbon, 19 January 2007.
- *A Estratégia Europeia para a Energia*, in Conference Simmons & Simmons Rebelo de Sousa, "Agenda de Lisboa e Inovacao", Lisbon, 16 January 2007.
- *Implementing the Renewed Partnership for Growth and Jobs: – The European Institute of Technology*, in AMISA Breakfast meeting, "", Brussels, 11 January 2007.

### Activity as Chair

- Tenth Conference on Energy Markets, COGEN Portugal, Lisbon, Portugal, 6-7 November 2006.
- Chairperson in the Conference “Bolonha e a Inserção no Mercado de Trabalho”, Universidade Lusófona, Lisbon, Portugal, 3 November 2006.
- "Ambiente, Transportes e Sustentabilidade Urbana", Dias do Departamento de Engenharias e Ciências Naturais da Universidade Lusófona, Lisbon, May 19, 2006.

### Papers

- *Globalisation of R&D*, High Level Group of Commissioner Potocnik on Acknowledge for Growth.
- *After Kyoto*, in BEPA Monthly Brief, 1 February 2007.
- *Technical Note on Biofuels*, 1 July 2007.
- *Nota Técnica – Biocombustíveis*, 1 July, 2007.
- *Technical Note on Biofuels - The European Union*, 1 July 2007.
- *Technical Note on Biofuels - Markets*, 1 July 2007.
- *Technical Note on Biofuels – The Bio-Ethanol Brazil Programme*, 1 July 2007.
- *Technical Note on Biofuels - USA*, 1 July 2007.

### Others

- Jornadas Sociais Democratas, “Políticas para a Juventude”, Universidade Lusófona, Lisbon, 16-17 May 2007
- *O Futuro da Europa*, Conference organized by PSD, Lisbon, 7 May 2007.

## MANAGEMENT CAREER

- Minister of Science, Innovation and Higher Education of the XVI Constitutional Government from July 2004 to March 2005.
- Minister of Science and Higher Education of the XV Constitutional Government from October 2003 to July 2004.
- Director General of GRICES – Office for International Relations in Science and Higher Education (former ICCTI), from December 2002 to October 2003.
- Member of the Board of Directors of AGEEN – Agency for Energy, from October 2000 to October 2001.

## TEACHING CAREER

Since 1992/93 Full Professor at the Applied Thermodynamics Section of the Mechanical Engineering Department of Instituto Superior Técnico, Technical University of Lisbon.

1987/88 to 1991/92	Associate Professor at the Applied Thermodynamics Section, Department of Mechanical Engineering, Instituto Superior Técnico, Technical University of Lisbon.
1984/85 to 1986/87	Auxiliary Professor at the Applied Thermodynamics Section, Department of Mechanical Engineering, Instituto Superior Técnico, Technical University of Lisbon.
1978/79 to 1983/84	Lecturer at the Applied Thermodynamics Section, Department of Mechanical Engineering, Instituto Superior Técnico, Technical University of Lisbon
1978/79	Lecturer at the Department of Applied Thermodynamics, Instituto Superior Técnico, Technical University of Lisbon.
1977/78	Instructor at the Department of Mathematics, Instituto Superior Técnico, Technical University of Lisbon.

## RESEARCH CAREER

Since 1992/1993	Research fellow at IDMEC - Instituto de Engenharia Mecânica, IST, section 9 - Combustion, Turbulence and Pollution, Centre of Energy Technologies.
1984	Awarded a three-month Scholarship to work at Lehrstuhl für Stromungsmechanik, Friederich Alexander Universität, Erlangen-Nuremberg, Germany.
1983/1992	Research fellow at the Centre for Applied Thermodynamics and Fluid Mechanics, Technical University of Lisbon, within the line of action Laser Anemometry and Numerical Methods in Fluids, Combustion and Heat Transfer.
1979/83	Research student leading to Degree of Doctor of Philosophy in Fluid Mechanics Section, Mechanical Engineering Department, Imperial College of Science and Technology, University of London, under the supervision of Dr. F.C. Lockwood.
1978/79	Research Scholarship from the Centre for Applied Thermodynamics and Fluid Mechanics, Technical University of Lisbon, within the line of action Numerical Modelling in Furnaces and Combustion Chambers.

## AWARDS

2007	She was decorated with the Golden Medal of Career Acknowledgement and Merit by Universidade Lusófona (31 March)
2005	She was decorated with the High Honour of the Great Cross by the Chancellery of the International Order of Merit of the Discoverer of Brazil (26 April).
2004	Honour member of COEDADE RUP, European Organizational Committee for the Energy's Sittings in the Outermost Regions (September).
2002	She was decorated with the designation "Great Official of the Order of Public Instruction" within the scope of International Women's Day Programme by the President of Portugal (8 March).
1971/72	National prize.
1971/72	King Diniz's prize.
1970/71	King Diniz's prize.
1969/70	King Diniz's prize.

## MEMBERSHIPS

- "Fellow" to WAAS – World Academy of Art and Science, since October 2005.
- Counsellor Member of the Portuguese Engineering Association, since November 2003.
- Senior member of the Portuguese Engineering Association, since July 2002.
- "Fellow" of AAAS - American Association for the Advancement of Science, since October de 2000.
- "Fellow" of AIAA - American Institute of Aeronautics and Astronautics since November 1999.
- Entitled Expert in Energy Engineering by the Portuguese Association of Engineers since November 1999.
- Senior Member of AIAA - American Institute of Aeronautics and Astronautics since February 1999.
- Member of the Associação Portuguesa dos Engenheiros de Frio Industrial e Ar Condicionado, since January 1998.
- Member of the American Biographical Institute since July 1996.
- Member of the Portuguese Association of Theoretical Applied and Computational Mechanics since June 1996.
- Member of the Optical Society of America since January 1996.
- Member of the American Ceramic Society since February 1995.

- Founding member of Academia de Engenharia (Portuguese Academy of Engineering) since December 1994.
- Member of the Portuguese Section of the Combustion Institute since December 1994.
- Member of the Society of Glass Technology since June 1993.
- Member of the Portuguese Engineering Association since April 1993.
- Member of AAAS - American Association for the Advancement of Science since November 1992.
- Member of IAFSS - International Association for Fire Safety Science since June 1992.
- Member No. 300657376 of AIAA - American Institute of Aeronautics and Astronautics since December 1990.
- Member No. 2364826 of ASME - American Society of Mechanical Engineers since December 1990.
- Member of the International Combustion Institute since September 1989.
- Member No. 497 of ACTD (Science Association for Technology and Development) since May 1989 to July 2000, date of closure.
- Member of ERCOFTAC - European Research Centre on Flow, Turbulence and Combustion. Lisbon Pilot Centre since March 1989.

## TEACHING ACTIVITY

### a) Graduation Courses

1995/96 to 2001/02	Heat and Mass Transfer (Aerospace Engineering). Instituto Superior Técnico. Professor.
1995/96	Heat Transfer (Mechanical Engineering). Instituto Superior Técnico. Professor.
1979/80 to 2001/02	Heat and Mass Transfer (Mechanical Engineering). Instituto Superior Técnico. Professor.
1978/1979	Thermodynamics (Mechanical Engineering). Instituto Superior Técnico. Assistant.
1977/1978	Mathematical Analysis (Mechanical Engineering). Instituto Superior Técnico. Instructor.

### b) Post-Graduation Courses

2000/01	Master of Science Course in Mechanical Engineering. - Heat Transfer and Combustion.
1995/96 and 1996/97	Master of Science Course in Advanced Topics of Energy Transfer and Conversion, - Conduction. - Radiation. - Numerical Methods in Heat Transfer.
1987/88 to 1993/94	Master of Science Course in Advanced Topics of Energy Transfer and Conversion, - Conduction. - Radiation. - Numerical Methods in Heat Transfer.
1987/88	Post-graduation Course at Naval Scholl Prince Henry "Technology and Naval Sciences" - Heat and Mass Transfer.
1983/84	Master of Science Course in Topics in Heat and Mass Transfer, - Conduction. - Radiation. - Numerical Methods in Heat Transfer.

### c) Teaching Courses - Professional Training

1988	"Industrial Furnaces and Boilers", I.S.T., - Transport Phenomena - Radiation in Industrial Furnaces and Boilers - Computer Aided Design of Furnaces and Boilers
1988	"Climatization" - Transport Phenomena
1988	"Pollution and Environmental Impact", I.S.T., - Transport Phenomena

1987	"Rational Use of Energy", I.S.T., - Heat Transfer
1987	"Combustion and Energy", I.S.T., - Heat and Mass Transfer - Numerical Methods Applied to Combustion
1987	"Computer Aided Thermofluids Analysis", I.S.T., - Heat Transfer - Numerical Methods in Heat Transfer
1986	"Fossil Fuels and Rational Use of Energy", L.N.E.T.I., - Heat Transfer
1986	"Rational Use of Energy", I.S.T. - Heat Transfer - Numerical Techniques
1986	"Combustion and Energy", I.S.T., - Heat and Mass Transfer - Rational Use of Energy

## RESEARCH ACTIVITY

- Design, control and operation optimisation of industrial combustion chambers.
- Radiation modelling. Radiation models and their application to complex geometries of industrial combustion chambers.
- Optical and radiative properties of particles.
- Numerical simulation of industrial furnaces.
- Numerical simulation of gas turbine combustion chambers.
- Combustion. Diffusion flames. Combustion of gaseous fuels.
- Combustion of liquid fuels.
- Combustion of solid fuels. Combustion of pulverised coal.
- Combustion of fuel blends.
- NO<sub>x</sub> formation and destruction numerical models.
- Modelling of combustion and heat transfer in solid-fired fluidised bed reactors.
- Physical and mathematical modelling of fires.
- Heat transfer in materials processing.
- Study of heavy metals, dioxins and other emissions from coal and wastes co-combustion.
- Development of numerical techniques for complex geometries.
- Parallel computing.
- Development of sensors for industrial applications.
- Control strategies and diagnostic system for industrial combustion equipment.
- Fuel cells.
- New and renewable energy sources.
- Feasibility studies for NRES penetration.
- Sustainable energy technologies.
- Energy systems for developing countries.
- Climate change.
- Support to the implementation of the Kyoto mechanisms.
- Development and transfer of technology.
- Capacity building in developing countries.

## UNIVERSITY MANAGEMENT ACTIVITY

2000/02	Coordinator of the Thermofluids and Energy Section of the Department of Mechanical Engineering of Instituto Superior Técnico
Since 1993	Member of the Board of Directors of IDMEC - Institute of Mechanical Engineering.
1993/96	Representative of the Department of Mechanical Engineering in the Coordination Committee of the Scientific Board, Instituto Superior Técnico.
1992/94	Member of the Graduation Committee in Aerospace Engineering.
1991/92	President of the Scientific Board - Instituto Superior Técnico (School of Engineering of the Technical University of Lisbon - 10000 students and 1000 members of staff)

1990/91	Deputy-President of the Scientific Board, Instituto Superior Técnico.
1990/92	Coordinator of Programme "CIENCIA" of Instituto Superior Técnico.
1988/89	Member of the Board of Directors, Instituto Superior Técnico.
1987/89	Coordinator of the Energy Profile, Master of Science Course in Mechanical Engineering.
1986/87	Representative of the Department of Mechanical Engineering at the Users' Council, Computer Centre, Instituto Superior Técnico.

## **EDITORIAL ACTIVITY**

- Member of the Editorial Board of "Energy – The International Journal" (Elsevier), since July 2002.
- Editor for the area of Mechanical Engineering of "ACE News" (University of Aveiro), since May 2002.
- Editor-in-chief of "Clean Air – International Journal on Environmental Combustion Technologies" (Gordon and Breach Publishers/Taylor & Francis), from 1999 to 2003. Since January 2003 the Journal changed its title to "Clean Air – International Journal on Energy for a Clean Environment" and is published by Begell House.
- Member of the Scientific Board of the "MEDETEC Journal - Energy Technology for Mediterranean Countries" (European Commission), since September 1998.
- Deputy director of the journal "INGENIUM" (Portuguese Engineering Association), from April 1998 to October 2002.
- Member of the Editorial Board of "International Journal of Energy Research" (J. Wiley), since December 1997.
- Editor of the "Combustion Technologies for a Clean Environment" volumes of the series *Energy, Combustion and the Environment* (Gordon and Breach Publishers/Taylor & Francis), since 1995.
- Honorary Member of the Editorial Board of the "Encyclopedia of Life Support Systems (EOLSS)", since 1995.
- Member of the Editorial Board of the papers in the field of Mechanical Engineering of the Journal "INGENIUM" (Portuguese Engineering Association), from November 1995 to April 1998.
- Member of the International Editorial Advisory Board of "Revue Générale de Thermique" (Éditions Européennes Thermique et Industrie), from August 1994 to 1997.

## **PROFESSIONAL ASSOCIATIONS ACTIVITY**

- Member of the Board of Directors of the National Council of Self-Employment Professions, from September 2002 to October 2003.
- Representative of the Portuguese Engineering Association in the Board of Directors of the National Board of Self-Employment Professions, from July 2002 to October 2003.
- Member of the Executive Committee of Expertise in Energy of the Portuguese Engineering Association, from May 2002 to October 2003.
- National Vice-president of the Portuguese Engineering Association, (≅ 33000 members) from April 1998, to October 2003.
- Member of the Board of Directors of the Portuguese Academy of Engineering, from January 1996 to April 1998.
- Member of the National Board of the College of Mechanical Engineering in the Portuguese Society of Engineers, from 1995 to 1998.

## **INTERNATIONAL BODIES ACTIVITY**

- Representative of the Portuguese Engineering Association in the International Glass Commission, since January 2000.
- Portuguese Representative in the International Commission on Glass, since January 1999.
- Portuguese Delegate in the General Assembly of ICHMT (International Centre for Heat and Mass Transfer), since July 1998.
- National Delegate of JOULE/Thermie Programme - Non-nuclear Energies, (NNE) (Research), from 1995 to 1998.
- Portuguese Representative at the European Two-Phase Flow Group.
- Portuguese Representative at the Eurotherm Committee, since 1988.

## **NATIONAL BODIES ACTIVITY**

- Chairperson of the Working Group for the Cement Area of the Consultancy Board for Pollution Integrated Prevention and Control, from May 2002 to October 2003.
- Coordinator of the Special Working Group on Wastes, National Board for Environment and Sustainable Development, from March 2000 to October 2003.
- Member of the National Board for Environment and Sustainable Development, from March 1999 to October 2003.
- Member of the Specialized Board on the "National Plan of Economic and Social Development", since January 1999.
- Member of the National Board of Education, from January 1999 to October 2002.

## **ACTIVITY BY APPOINTMENT OF INTERNATIONAL INSTITUTIONS**

### **European Commission**

- Member of the Coal and Steel Committee (COSCO), from February 2003 to October 2003.
- Member of the Steering Committee in the area of Fuel Cells in the scope of the Energy Programme of the D. G. Research, since October 2000.
- Technical assistance, co-ordination and technical and scientific monitoring of contracts concluded within the framework of the "Rational Use of Energy" in the area of Demonstration of the Non Nuclear Energy RTD Specific Programme, from 1st April 1999 to 30th September 2000 (contract TTM 6.7151/M/98-002), July 1999.
- Member of the "Fifth Framework Programme Advisory Group" on "Cleaner Energy Systems" and "Economic and Efficient Energy", since November 1998.
- Member of the Waste Forum (D.G. XI, XII and XVII of the European Commission), since 1995 to 1997.
- Member of the Steering Committee of JOULE II, JOULE II - Extension, JOULE III and APAS (Activité de Promotion, d'Accompagnement et de Suivi) - Clean Coal Technology Programme - European Commission - Directorate-General for Science, Research and Development, since October 1993 to 1997.

### **Other International Institutions**

- Member of the Board of Management of CTI - Climate Technology Initiative (OCDE/E.U. in close collaboration with U. N. Framework Convention on Climate Change), since 2000.

## **R & D EVALUATING ACTIVITY (NATIONAL AND INTERNATIONAL)**

- Member of the Accompanying Committee of the Political Energy Programme of Madeira Island, since June 2003.
- Member of the Grants Committee of ICHMT (International Centre for Heat and Mass Transfer), since April 2003.
- Chairperson of the "Engineering Sciences Evaluation Panel of the Marie Curie Individual Fellowships Activity", contract HPME-CT-1999-01001, 5<sup>th</sup> Framework Programme, from 1<sup>st</sup> November to 31<sup>st</sup> December 1999.
- Appraiser of candidacies to projects submitted to the "Support System to the Technological Capacities of SMEs", Agência de Inovação, November 1999.
- Appraiser of the ECSC Coal RTD Programme, contract No. 7220-ZZ, July 1999.
- Chairperson of the Evaluation Panel of the "Engineering Sciences Panel of the Marie Curie Individual Fellowships Activity", contract HPME-CT-1999-00183, from 1<sup>st</sup> June to 31<sup>st</sup> July 1999.
- Appraiser of the Programme "Basic Research Grant Scheme" of the National Research Support Fund Board of the Irish Ministry for Science, Technology and Commerce, March 1999.
- Appraiser of the European Programmes: BRITE (1989), JOULE (1993), TMR (1995/98), FAIR (1997), ECSC (1997).
- Member of the National Coordinating Committee of Research in Energy – JNICT from 1988 to 1995.

## **PARTICIPATION IN AWARDS AND CONTEST JURIES**

- Member of the Technical Evaluation Panel of the 1<sup>st</sup> International Environmental Design Contest, June 2003.
- Representative of the Portuguese Engineering Association in an International Contest for the city of Almada, from March 2001 to July 2002.
- Member of the Honours and Awards Committee of the International Centre for Heat and Mass Transfer.

- Member of the Jury of “2002 European IST Prize”.
- Member of the Jury of “2001 European IST Prize”.
- Member of the Jury of Gas Natural 2000 Prize (Energy/Environment) – GDP Distribution.
- Member of the Executive Jury of the “European IT Prize 98”.
- Member of the Scientific Board of the EUROTHERM Prize Committee, since November 1998.
- Member of the technical evaluation group of ITEA’97 – Information Technology European Awards – European Council of Applied Sciences and Engineering.
- Member of the technical evaluation group of ITEA’96 – Information Technology European Awards – European Council of Applied Sciences and Engineering.

## **SCIENTIFIC AND EXECUTIVE COMMITTEES OF R & D ORGANISATIONS**

- Member of the Executive Committee of ICHMT (International Centre for Heat and Mass Transfer), since July 2002.
- Member of the Enterprises Scientific Committee of the Engineering and Technology 2000 Programme, since 1999.
- Member of Scientific Council of ICHMT (International Centre for Heat and Mass Transfer), since July 1998.
- Member of the Scientific and Technological Committee of ITEC – Technological Institute for the European Union, 1990/92.
- Member of the Scientific Board of ERCOFTAC – European Research Centre on Flow, Turbulence and Combustion, since 1989.

## **CONSULTING ACTIVITY**

- Scientific Expert of PRAXAIR, Union Carbide, USA, since 1992.

## **ADVISORY ACTIVITY**

- Counsellor of the Portuguese Environment Ministry in the Programme “Climate Changes” within the negotiation of the Kyoto Protocol during the Portuguese Presidency of the European Union (January-June 2000), since August 1999.
- Coordination, at European level, of the CB (Capacity Building) and TT (Technology Transfer) thematic groups within the Programme “Climate Changes” since August 1999.
- Documents produced in the areas of capacity building and development and transfer of technologies in the framework of the European Union Portuguese presidency:

### **SUBMISSIONS**

#### Capacity Building

- Submission by Portugal on behalf of the European Community and its Member States on Capacity Building – a compilation of best practices in the EU – submitted to UNFCCC on 1 March 2000.
- Submission by Portugal on behalf of the European Community and its Member States on capacity building in developing countries – submitted to UNFCCC on 30 June 2000.
- Submission by Portugal on behalf of the European Community and its Member States on capacity building in developing countries – submitted to UNFCCC on 30 June 2000.

#### Development and Transfer of Technologies

- Submission by Portugal on behalf of the European Community and its Member States development and transfer of technologies – submitted to UNFCCC on 30 June 2000.

### **STATEMENTS**

- Statement by Portugal, on behalf of the European Community and its Member States on capacity building for developing countries. 12<sup>th</sup> Session of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change, Bonn, Germany, 5-16 June 2000
- Statement by Portugal, on behalf of the European Community and its Member States on technology transfer. 12<sup>th</sup> Session of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change, Bonn, Germany, 5-16 June 2000

## BACKGROUND PAPERS

- Background paper on strategic issues for developing countries  
Note: This paper is based on the background papers on integrated framework for developing countries, capacity building, technology transfer and articles 4.8 and 4.9. This is a living document intended to help preparing a EU strategy on developing countries issues for the next SB's and COP-6.
- Background paper on integrated framework for developing countries (Europa version)
- Background paper on integrated framework for developing countries (Africa version)
- Capacity building in developing countries: EU strategy up to COP-6
- Capacity building for countries with economies in transition: EU strategy up to COP-6
- Strategy paper on technology transfer: EU strategy up to COP-6

## PRESENTATIONS IN REGIONAL WORKSHOPS ON THE CONSULTATIVE PROCESS OF TRANSFER OF TECHNOLOGY

- Alves, L.M., and Carvalho, M.G. – “European innovative new and renewable energy technologies in African islands and remote regions”. African regional workshop on transfer of technology, Arusha, Tanzania, 16-18 August 1999
- European Union economic and development co-operation for technology transfer: responding to the objectives of the United Nations Convention on Climate Change – presented at the Asia and Pacific Islands Regional Workshop on Transfer of Technology, Cebu, Philippines, 17-19 January 2000. (Paper prepared by Portugal on behalf of the European Union and based on the EC working document)
- “EU economic and development co-operation: responding to the new challenges of climate change”, EU document “Compilation of best practices in the EU: submission by Germany on behalf of the European Union and its member states on co-operative approaches to technology transfer”, and the EU statement on capacity building and on development and transfer of technologies presented at the 5<sup>th</sup> UNFCCC conference of parties)
- European Union economic and development co-operation for technology transfer: responding to the objectives of the United Nations Convention on Climate Change – presented at the Latin America and Caribbean Regional Workshop on Transfer of Technology, San Salvador, El Salvador, 29-31 March 2000. Prepared by Portugal on behalf of the European Community and its Member States

## REPORTS OF THE REGIONAL WORKSHOPS OF TRANSFER OF TECHNOLOGY

- Report on the EU participation at the African Regional Workshop on Transfer of Technology – Arusha, Tanzania, 16-18 August 1999
- Report on the EU participation at the Asia and Pacific Islands Regional Workshop Cebu (Lapu-Lapu City) – Philippines 17-19 January 2000 as part of the transfer of technology consultative process framework convention on climate change
- Report on the EU participation at the Latin America and Caribbean Regional Workshop – United Nations Framework Convention on Climate Change – Latin American and Caribbean Regional Workshop on Transfer of Technology – San Salvador, El Salvador, 29-31 March 2000

## REPRESENTATIVE OF THE EUROPEAN UNION IN THE FOLLOWING WORKSHOPS, IN COOPERATION WITH UNFCCC (United Nations Framework Convention on Climate Change):

- 6<sup>th</sup> Session of the Conference of the Parties (COP6), The Hague, The Netherlands, 3-24 November 2000
- 13<sup>th</sup> Session of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change, The Hague, The Netherlands, 3-24 November 2000
- 12<sup>th</sup> Session of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change, Bonn, Germany, 5-16 June 2000
- Latin America and the Caribbean Regional Workshop on Transfer of Technology, San Salvador, El Salvador, 29-31 March 2000
- Transfer of Technology Consultative Process – Asia and the Pacific Regional Workshop, Lapu-Lapu City, Cebu, Philippines, 17-19 January 2000
- 5<sup>th</sup> Session of the Conference of the Parts (COP5), Bonn, Germany, 25 October-5 November 1999
- 11<sup>th</sup> Session of the Subsidiary Bodies of the United Nations Framework Convention on Climate Change, Bonn, Germany, 25 October-5 November 1999

- o Transfer of Technology Consultative Process – African Regional Workshop, Arusha, Tanzania, 16-18 August 1999

## **SUPERVISION OF STUDENTS**

### **Post-Doctoral**

Fengzhen Chen	Waste to Hydrogen. Starting date: October 2000.
Nuray Kayakol	Development of Computational Intelligence Technologies for On-line Optimization of Industrial Radiative Combusting Systems. Starting date: April 2000.
Neven Duic	New and Renewable Energy Sources with Special View on Insular and Isolated Regions. Starting date: January 2000.
Luís Manuel Monteiro Alves	Analysis of the Potential for Market Penetration of EU Innovative Renewable Energy Technologies on Cabo Verde Islands. Starting date: August 1998.
Xiu-Guang He	Application of Models to Support Boiler Operation Addressing Fouling/Slagging. Since March 1996 to July 1999.
Jianwei Yuan	Development of Combustion Chamber Design Using Three Dimensional Numerical Models. Since March 1996 to June 1997.

### **Doctorate Degrees**

Gonçalo Nuno Antunes Gonçalves	Starting date 2003
Ruy Spencer Lopes dos Santos	Starting date 2003
Gilberto Monteiro Tavares	Starting date 2002
Anildo Lopes Costa	Starting date 1998
José Pedro Fonseca	2006
Luís Manuel Rodrigues Coelho	2005
Pedro José Alves Vieira Novo	2001
Augusto César de Mendonça Brasil	2000
João Carlos Godinho Viegas	1999
Nelson Amadeu Dias Martins	1999
Wang Jian	1998
Artur Jorge da Cunha Barreiros	1998
Rui António Pitarma Sabino da Cunha Ferreira	1998
Tiago Alexandre Abrantes Teixeira Lopes Farias	1997
João António Esteves Ramos	1997
Philippe Joseph Ghislain Meunier	1996
João Luís Toste de Azevedo	1994
Pedro Jorge Martins Coelho	1991
Viriato Sérgio de Almeida Semião	1989

### **Master of Science Degrees**

Ulisses Mendes Fernandes	2004
António Manuel Gomes Domingues	2003
João Nuno Pinto Miranda Garcia	2001
António Manuel Alho Martins	1995
Pedro Nuno Dinho Pinto da Silva	1993
Amílcar José Martins Arantes	1993
Pedro César Pereira Alves Saraiva	1993
Luís Manuel Rodrigues Coelho	1993
Carlos Frederico de Menezes Coimbra	1992

Rui António Pitarma Sabino da Cunha Ferreira	1992
Artur Jorge da Cunha Barreiros	1992
Marcos António de Barros Silva Nogueira	1991
João António Esteves Ramos	1990
Paulo Miguel Marques Fontes	1990
Filipe José Didelet Pereira	1989
Miguel Perez Neves Águas	1988
Pedro Jorge Martins Coelho	1987
Viriato Sérgio de Almeida Semião	1986

### **Exams for Pedagogic and Scientific Aptitude**

João Luís Toste de Azevedo	1988
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### **Synthesis Projects**

João Carlos Godinho Viegas	1992
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### **Graduation Projects**

Sandrina Baptista Pereira	2003 Co-supervision of Prof. Afzal Suleman
Jailza Soraia Rodrigues Silva	2003 Co-supervision of Prof. Afzal Suleman
André Filipe Gonçalves da Cruz	2003 Co-supervision of Luís Alves, PhD
Maria Malato Lerer	2002 Co-supervision of Prof. João Seixas
Pedro Saraiva Sarmento Coelho	2001 Co-supervision of Prof. Luis Roriz
Patrícia Ferreira Rei	2001 Co-supervision of Prof. Manuel Collares Pereira
Gonçalo Nuno Antunes Gonçalves	2001 Co-supervision of Luis Alves, PhD
Ricardo Carvalho	2000 Co-supervision of Luis Alves and Neven Duic, PhDs
Mafalda Tavares	2000 Co-supervision of Luis Alves and Neven Duic, PhDs
Sara Atalaya	2000 Co-supervision of Eng. Anildo Costa
Susana Maria Figueiredo Pires	1999 Co-supervision of Luís Alves, PhD
Pedro Jesus	1998 Co-supervision of Eng. Marcos Nogueira
João Carlos Gonçalves Fonseca	1995 Co-supervision of Eng. Marcos Nogueira
Jorge Alexandre Ramos Ferreira Pires	1995 Co-supervision of Eng. Marcos Nogueira
Ana Paula Xeira	1995 Co-supervision of Eng. Marcos Nogueira
João Pedro Taborda da Silva	1994 Co-supervision of Eng. Marcos Nogueira
Nuno Melo Costa	1994 Co-supervision of Prof. Mário Costa
Miguel Jorge de Sá Rocha Mourão	1993 Co-supervision of Prof. Mário Costa
Filipe Marques Carnal	1992
Luis Filipe Parreira Augusto	1991
Tiago Alexandre Abrantes Teixeira Lopes Farias	1990
Pedro César Pereira Alves Saraiva	1990
Nelson Amadeu Dias Martins	1990
David da Costa Afonso	1990
Ralf Bielack	1989
Amílcar José Martins Arantes	1989
Artur Jorge da Cunha Barreiros	1989 Prize for Innovation and Creativity
Luís Manuel Rodrigues Coelho and Marcos António de Barros da Silva Nogueira	1988

### **PARTICIPATION IN JURIES**

- Full Professor Jury:
  - Open Competition for Full Professor of the Mechanical Engineering Department of Faculty of Sciences and Technology of Coimbra University (1999)
  - Open Competition for Full Professor of the Mechanical Engineering Department and Industrial Management of Oporto University (1998)
- Doctor of Science Jury:

- Maria Manuela Martins Saraiva Sarmento Coelho, Universidade da Beira Interior – examiner of the curriculum and of the chair report (2003)
- Jorge Manuel Figueiredo Coelho de Oliveira, Instituto Superior Técnico (2000)
- Fernanda Adelina Anselmo Soares Rodrigues de Oliveira, Instituto Superior Técnico – examiner (2000)
- Jorge Manuel Martins Barata, Universidade da Beira Interior – examiner (1999)
- Sebastião Manuel Tavares da Silva Alves, Instituto Superior Técnico (1999)
- Luís Adriano Alves de Sousa Oliveira, Faculdade de Ciência e Tecnologia da Universidade de Coimbra (1998)
- Maria Teresa Nunes Padilha de Castro Correia de Barros, Instituto Superior Técnico (1995)
- Manuel José Moreira de Freitas, Instituto Superior Técnico (1995)
- Rui Mário Correia da Silva Vilar, Instituto Superior Técnico (1995)
  
- Habilitation Jury:
  - António Leça Coelho, Laboratório Nacional de Engenharia Civil (2006)
  
- Associate Professor Jury:
  - Kungl Tekniska Högskolan, Sweden (2002)
  - University of Dublin, Trinity College, Ireland (2002)
  - Instituto Superior Técnico, Department of Mechanical Engineering (2000)
  - Universidade da Beira Interior, Electromechanical Engineering (1999)
  - Universidade do Porto, Faculty of Engineering, Department of Mechanical Engineering (1999)
  - Instituto Politécnico da Guarda (1998)
  - Universidade da Beira Interior, Electromechanical Engineering (1998)
  - Universidade do Minho (1997)
  - Universidade do Porto, Faculty of Engineering (1996)
  - Instituto Superior Técnico, Department of Mechanical Engineering (1996)
  - Universidade do Porto, Faculty of Engineering (1995)
  - Instituto Superior Técnico, Department of Mechanical Engineering (1995)
  - Instituto Superior Técnico (1994)
  - Instituto Superior Técnico (1994)
  
- Doctorate Jury:
  - M. Akritopoulos, Imperial College of Science, Technology and Medicine – examiner (2005)
  - José Luís Coelho Alexandre, Faculty of Engineering, Universidade do Porto – examiner (2002)
  - Isabel Dème, École des Mines de Paris (2002)
  - Duarte Dias Alves Pupo Correia, Instituto Superior Técnico, Department of Mechanical Engineering (2001)
  - Lu Pisi, Instituto Superior Técnico, Department of Mechanical Engineering (2001)
  - Augusto César de Mendonça Brasil, Instituto Superior Técnico, Department of Mechanical Engineering (2000)
  - João Carlos Godinho Viegas, Instituto Superior Técnico (1999)
  - Nelson Amadeu Dias Martins, Instituto Superior Técnico (1999)
  - Miguel Perez Neves Águas, Instituto Superior Técnico (1998)
  - Mona Jacobsen, Universidade de Ciência e Tecnologia da Noruega – examiner (1998)
  - Jian Wang, Instituto Superior Técnico (1998)
  - Artur Jorge da Cunha Barreiros, Instituto Superior Técnico (1998)
  - Rui António Pitarma Sabino da Cunha Ferreira, Instituto Superior Técnico (1998)
  - João António Esteves Ramos, Instituto Superior Técnico (1998)
  - Óscar David dos Santos Mota, Faculty of Engineering, Universidade do Porto - examiner (1997)
  - Tiago Alexandre Abranches Teixeira Lopes Farias, Instituto Superior Técnico (1997)
  - Michel El Hayek, Faculdade Politécnica de Mons (1997)
  - José Joaquim da Costa, Universidade de Coimbra – examiner (1996)
  - Manuel Arlindo Amador de Matos, Universidade de Aveiro (1996)
  - Philippe Joseph Ghislain Meunier, Universidade Católica de Louvaina (1996)
  - Xiquing Chen, Instituto Superior Técnico – examiner (1995)
  - João Luis Toste de Azevedo, Instituto Superior Técnico (1994)
  - Armando Silva Santos, Faculty of Engineering, Universidade do Porto – examiner (1993)
  - Pedro Jorge Martins Coelho, Instituto Superior Técnico (1991)
  - Viriato Sérgio de Almeida Semião, Instituto Superior Técnico (1990)
  - Jorge Manuel Martins Barata, Instituto Superior Técnico (1989)

- José Leonel Monteiro Fernandes, Instituto Superior Técnico – examiner (1986)
- Jury of Doctorate Equivalence:
  - João Luis Vieira Alves e Sousa, Universidade Técnica de Lisboa (1996)
  - Miguel Eduardo Pita de Jesus, Universidade Técnica de Lisboa (1996)
  - Mário Manuel Gonçalves da Costa, Universidade Técnica de Lisboa (1992)
  - Luis Pedro Paz, Universidade Técnica de Lisboa (1990)
  - José Manuel Laginha Mestre da Palma, Universidade Técnica de Lisboa (1989)
  - Jorge Paiva Cruz Costa, Universidade Técnica de Lisboa (1988)
- Master Jury:
  - António Manuel Gomes Domingues, Instituto Superior Técnico, Department of Mechanical Engineering (2005)
  - Ronne Toledo, Instituto Superior Técnico, Department of Mechanical Engineering (2001)
  - João Nuno Pinto Miranda Garcia, Instituto Superior Técnico, Department of Mechanical Engineering (2001)
  - José Nuno Pereira de Melo Pinto Lopes, Instituto Superior Técnico, Department of Mechanical Engineering (2000)
  - Miguel Nuno de Oliveira Gama Caldas, Instituto Superior Técnico, Department of Mechanical Engineering (1999)
  - Alexandre Miguel Cordeiro Magrinho, Instituto Superior Técnico, Department of Mechanical Engineering (1999)
  - Delmira Marília Lopes Duarte Ferrão, Instituto Superior Técnico (1998)
  - João Miguel Neves Zorro Gonçalves, Instituto Superior Técnico (1997)
  - Susana Maria Lasbarrères Camelo, Instituto Superior Técnico (1996)
  - Manuel Ferreira dos Santos, Instituto Superior Técnico (1995)
  - António Manuel Alho Martins, Instituto Superior Técnico (1995)
  - Pedro Nuno Dinho Pinto da Silva, Instituto Superior Técnico (1993)
  - Pedro César Pereira Alves Saraiva (1993), Instituto Superior Técnico (1993)
  - Amílcar José Martins Arantes, Instituto Superior Técnico (1993)
  - Luis Manuel Rodrigues Coelho, Instituto Superior Técnico (1993)
  - Amílcar Inocêncio Gonçalves Pereira de Miranda, Instituto Superior Técnico (1992)
  - Carlos Frederico de Menezes Coimbra, Instituto Superior Técnico (1992)
  - Rui António Pitarma Sabino da Cunha Ferreira, Instituto Superior Técnico (1992)
  - Artur Jorge da Cunha Barreiros, Instituto Superior Técnico (1992)
  - Marcos António Barros Silva Nogueira, Instituto Superior Técnico (1991)
  - João António Esteves Ramos, Instituto Superior Técnico (1990)
  - Paulo Miguel Marques Fontes, Instituto Superior Técnico (1990)
  - Filipe José Didelet Pereira, Instituto Superior Técnico (1989)
  - Manuel Arlindo Amador de Matos, Instituto Superior Técnico (1989)
  - Miguel Perez Neves Águas, Instituto Superior Técnico (1989)
  - Pedro Jorge Martins Coelho, Instituto Superior Técnico (1988)
  - Paulo Jorge dos Santos Pimentel de Oliveira, Instituto Superior Técnico (1986)
  - Viriato Sérgio de Almeida Semião, Instituto Superior Técnico (1986)
- Jury in the Exam for Pedagogic and Scientific Aptitude of João Luís Toste de Azevedo (1988)
- Jury in the Exam for Research Assistant (LNEC) of João Carlos Godinho Viegas (1992)

## **COORDINATION AND ORGANISATION OF TRAINING COURSES**

- 43 training courses in Portuguese Language, between 1988 and 2002

## **ORGANISATION OF CONFERENCES**

- Seventh International Conference on Energy for a Clean Environment  
Lisbon, Portugal  
7/10 July 2003  
279 participants, 40 countries

- 2<sup>nd</sup> Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems  
Dubrovnik, Croatia  
15/20 June 2003
- Água, Energia e Ambiente em Regiões Insulares  
Mindelo, S. Vicente and Praia, Santiago – Cape Verde  
8/10 July 2002
- XIV Congresso da Ordem dos Engenheiros  
Coimbra, Portugal  
27/29 June 2002  
490 participants
- International Conference on New and Renewable Technologies for Sustainable Development  
Ponta Delgada, Azores, Portugal  
24/26 June 2002  
100 participants, 17 countries
- 1<sup>st</sup> Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems  
Dubrovnik, Croatia  
2/7 June 2002
- Cumprindo os Objectivos do Protocolo de Quioto e Promovendo a Transferência de Tecnologia para Países Insulares em Desenvolvimento – Projecto CDMSIDS  
Sal, Cape Verde  
1 March 2002
- Sixth International Conference on Technologies and Combustion for a Clean Environment  
Oporto, Portugal  
9/12 July 2001  
266 participants, 37 countries
- Engenharia e Tecnologia 2000 - Ensaio de Prospectiva: 2000-2020  
27/28 November 2000  
Position: Representing the Portuguese Engineering Association
- XIII Congresso 2000 Engenharia e Cultura (Portuguese Engineering Association)  
Oporto, Portugal  
21/23 September 2000
- Euro Conference New and Renewable Technologies for Sustainable Development  
Madeira Island, Portugal  
26/29 June 2000  
75 participants, 24 countries
- Working Party on Climate Change - Informal Workshop of the Portuguese Presidency  
Sintra, Portugal  
7/8 February 2000  
Position: Local organizer
- Fifth International Conference on Technologies and Combustion for a Clean Environment  
Lisbon, Portugal  
12/15 July 1999  
324 participants, 28 countries
- International Conference and Exhibit on Heat Exchangers for Sustainable Development  
Lisbon, Portugal  
9/12 June 1998  
96 participants, 24 countries
- Eurotherm Seminar No.56 - Heat Transfer in Radiating and Combusting Systems  
Athens, Greece  
1/3 April 1998
- 1<sup>as</sup> Jornadas Nacionais do Colégio de Engenharia Mecânica da Ordem dos Engenheiros  
Oporto, Portugal  
9/10 March 1998  
Position: Member of the Executive Board

- Fourth International Conference on Technologies and Combustion for a Clean Environment  
Lisbon, Portugal  
7/10 July 1997  
238 participants, 28 countries
- Open Workshop on Advanced Modelling and Sensing Tools for Energy Saving in Industry  
Sintra, Portugal  
10/12 April 1996  
64 participants, 11 countries
- International Symposium on Radiative Heat Transfer  
Kusadasi, Turkey  
14/18 August 1995  
84 participants, 19 countries  
Position: Member of the Organizing Committee.
- Third International Conference on Combustion Technologies for a Clean Environment  
Lisbon, Portugal  
3/6 July 1995  
212 participants, 28 countries
- APAS Clean Coal Technology Conference  
Lisbon, Portugal  
28/29 November 1994  
176 participants, 14 countries  
Position: Chairperson of the Local Organizing Committee
- 37<sup>th</sup> EURO THERM Seminar - Heat Transfer in Radiating and Combusting Systems - 2  
Saluggia, Italy  
5/7 October 1994  
64 participants, 13 countries
- Joint Meeting of the Italian and Portuguese Sections of the Combustion Institute  
CROCUS Combustion Related Organizations — Common and Unified Symposium  
Salsomaggiore Terme, Italy  
20/23 September 1994  
127 participants, 5 countries
- 1993 ICHMT International Symposium on New Developments in Heat Exchangers  
Lisbon, Portugal  
6/10 September 1993  
80 participants, 15 countries  
Position: Chairperson of Local Organizing Committee
- ICDERS – 14<sup>th</sup> International Colloquium on the Dynamics of Explosions and Reactive Systems  
Coimbra, Portugal  
1/6 August 1993  
Position: Member of the Local Organizing Committee
- Second International Conference on Combustion Technologies for a Clean Environment  
Lisbon, Portugal  
19/22 July 1993  
230 participants, 25 countries
- First International Conference on Combustion Technologies for a Clean Environment  
Vilamoura, Portugal  
3/6 September 1991  
171 participants, 24 countries
- 17<sup>th</sup> EURO THERM Seminar - Heat Transfer in Radiating and Combusting Systems  
Cascais, Portugal  
8/10 October 1990  
100 participants, 19 countries

## **PARTICIPATION IN THE SCIENTIFIC COMMITTEES OF CONFERENCES**

- 1<sup>st</sup>. International Conference on “Environmental Economics and Investment Assessment 2006”

- Mykonos, Greece  
13/15 September 2006  
Position: Member of the International Scientific Committee
- I Conferência Nacional de Métodos Numéricos em Mecânica dos Fluidos e Termodinâmica  
Universidade Nova de Lisboa, Campus de Caparica/ Portugal  
8/9 Junho 2006  
Position: Member of the Scientific Committee
  - 7<sup>th</sup>. European Conference on Industrial Furnaces and Boilers – INFUB  
Oporto, Portugal  
18/21 April 2006  
Position: Member of the International Scientific Committee
  - ECCOMAS Thematic Conference On Computational Combustion  
Lisbon, Portugal  
21/24 June 2005  
Position: Member of the International Scientific Committee
  - HYSYDAYS – 1<sup>st</sup>. World Congress of Young Scientists on Hydrogen  
Turin, Italy  
18/20 May 2005  
Oporto, Portugal  
18/21 April 2006  
Position: Member of the International Scientific Committee
  - Radiation IV – The Fourth International Symposium on Radiative Transfer  
Istanbul / Turkey  
20/25 June 2004  
Position: Member of the International Scientific Committee
  - ENERGEX 2004 International Energy Forum  
Lisbon / Portugal  
17/20 May 2004  
Position: Member of the International Scientific Committee
  - CHT-04 Advances in Computational Heat Transfer  
Norwegian Fjords  
19/24 April 2004  
Position: Member of the International Scientific Committee
  - VI Congresso Ibero-Americano de Engenharia Mecânica  
Coimbra, Portugal  
16/18 October 2003  
Position: Member of the International Scientific Committee
  - XVIII International Symposium on Combustion Processes  
Ustroń, Poland  
2/5 September 2003  
Position: Member of the International Scientific Committee
  - VII Congresso Nacional de Mecânica Computacional  
Évora, Portugal  
14/16 April 2003  
Position: Member of the Scientific Committee
  - 12<sup>th</sup> International Heat Transfer Conference – IHTC'12  
Grenoble, France  
18/23 August 2002  
Position: Member of the International Scientific Committee
  - 6<sup>th</sup> European Conference on Industrial Furnaces and Boilers - INFUB  
Estoril, Portugal  
2/5 April 2002  
Position: Member of the International Scientific Board
  - 1<sup>as</sup> Jornadas Politécnicas de Engenharia  
Leiria, Portugal

- 14/16 November 2001  
Position: Member of the Technical Scientific Committee, panel "Energy and Environment"
- The 39<sup>th</sup> European Two-Phase Flow Group Meeting  
Aveiro, Portugal  
17/20 June 2001  
Position: Member of the Scientific Committee
  - Radiation 2001 – The Third International Symposium on Radiative Transfer  
Antalya, Turkey  
10/15 June 2001  
Position: Member of the International Scientific Board
  - MODELUS 2000 – Modelling for a Sustainable Development  
Estoril, Portugal  
10/13 October 2000  
Position: Chairperson of the International Scientific Committee
  - 3<sup>rd</sup> European Thermal Sciences Conference  
Heidelberg, Germany  
10/13 September 2000  
Position: Member of the International Scientific Board
  - 28<sup>th</sup>. International Symposium on Combustion  
The Combustion Institute  
University of Edinburg, Scotland, United Kingdom  
30 July/4 August 2000  
Position: Member of the Scientific Committee and of the Programme Review Subcommittee
  - VI Congresso Nacional de Mecânica Computacional  
Aveiro, Portugal  
17/19 April 2000  
Position: Member of the Scientific Board.
  - 5<sup>th</sup> European Conference on Industrial Furnaces and Boilers - INFUB  
Espinho, Oporto, Portugal  
11/14 April 2000  
Position: Member of the International Scientific Committee
  - 4<sup>th</sup> International Symposium on Coal Combustion - 4th. ISCC  
Beijing, China  
18/21 August 1999  
Position: Member of the International Committee.
  - 6<sup>th</sup> International Symposium on Fire Safety Science.  
Poitiers, France  
5/9 July 1999  
Position: Member of the Programme Review Committee
  - Mediterranean Combustion Symposium  
Antalia, Turkey  
19/24 June 1999  
Position: Member of the Advisory Board
  - PRES'99 – 2<sup>nd</sup> Conference "Process Integration, Modelling and Optimization for Energy Saving and Pollution Reduction"  
Budapest, Hungary  
31 May/2 June 1999  
Position: Member of the International Scientific Committee
  - PRES'98 – 1<sup>st</sup> Conference "Process Integration, Modelling and Optimization for Energy Saving and Pollution Reduction"  
Praha, Czech Republic  
23/28 August 1998  
Position: Member of the International Scientific Committee
  - 13<sup>th</sup> International Congress of Chemical and Process Engineering CHISA'98  
Praha, Czech Republic

23/28 August 1998

Position: Member of the International Scientific Committee

- 27<sup>th</sup> International Symposium on Combustion  
The Combustion Institute  
University of Colorado, Boulder, USA  
2/7 August 1998  
Position: Member of the Scientific Committee and of the Programme Review Subcommittee
- Radiation – 97, International Symposium on Radiative Transfer  
Kusadasi, Turkey  
21/25 July 1997  
Position: Member of the International Scientific Committee
- Workshop on Advanced Control for Industrial Glass Melters  
Maastricht, The Netherlands  
6/7 May 1997  
Position: Member of the Advisory Scientific Committee
- 4<sup>th</sup> European Conference on Industrial Furnaces and Boilers - INFUB  
Espinho, Oporto, Portugal  
1/4 April 1997  
Position: Member of the International Scientific Committee
- 5<sup>th</sup> International Symposium on Fire Safety Science  
Melbourne, Australia  
3/7 March 1997  
Position: Member of the Programme Review Committee
- 26<sup>th</sup> International Symposium on Combustion  
The Combustion Institute  
University Federico II, Naples, Italy  
28 July/2 August 1996  
Position: Member of the Scientific Committee and of the Programme Review Subcommittee
- 2<sup>nd</sup> European Thermal – Sciences and 14<sup>th</sup> UIT National Heat Transfer Conference  
Rome, Italy  
29/31 May 1996  
Position: Member of the Scientific Committee
- E3 – Colloque Exposition Européen "Energie et Environnement".  
Marseille, France  
5/7 December 1995  
Position: Member of the Scientific and Technical Committee
- Eighth International Symposium on Transport Phenomena in Combustion  
San Francisco, California, USA  
16/20 July 1995  
Position: Member of the Programme Review Subcommittee
- 3<sup>rd</sup> European Conference on Industrial Furnaces and Boilers - INFUB  
Lisbon, Portugal  
18/21 April 1995  
Position: Member of the International Scientific Committee
- IV Encontro Nacional de Mecânica Computacional  
Lisbon, Portugal  
10/12 April 1995  
Position: Member of the Scientific Committee
- 38<sup>th</sup> EURO THERM Seminar - Heat and Mass Transfer in Circulating Fluidized Beds Application to Clean Combustion  
Marseille, France  
22/23 November 1994  
Position: Member of the Scientific Committee
- 36<sup>th</sup> EURO THERM Seminar – Advanced Concepts and Techniques in Thermal Modelling  
ENSMA, Poitiers, France

21/23 September 1994

Position: Member of the Scientific Committee

- International Conference on Combustion Dedicated to the 80<sup>th</sup> Anniversary of Academician Ya. B. Zeldovich  
Moscow, Russia  
12/17 September 1994  
Position: Member of the International Advisory Committee
- 10<sup>th</sup> International Heat Transfer Conference  
Brighton, United Kingdom  
14/18 August 1994  
Position: Poster Session Reviewer and Organizer: "Radiation and Combustion"
- 25<sup>th</sup> International Symposium on Combustion  
The Combustion Institute  
The University of California, Irvine, USA  
31 July/5 August 1994  
Position: Member of the Scientific Committee and of the Programme Subcommittee
- 1993 International Thermal Energy Congress  
Marrakesh, Morocco  
6/10 June 1993  
Position: Member of the International Committee
- International Conference on Energy Efficiency in Process Technology  
Athens, Greece  
19/22 October 1992  
Position: Member of the Scientific Committee
- III Encontro de Mecânica Computacional  
Coimbra, Portugal  
28/30 September 1992  
Position: Member of the Scientific Committee
- First European Thermal Sciences and Third UK National Heat Transfer Conference  
Birmingham, United Kingdom  
16/18 September 1992  
Position: Member of the Scientific Committee
- 24<sup>th</sup> International Symposium on Combustion  
The Combustion Institute  
Sidney, Australia  
6/10 July 1992  
Position: Member of the Scientific Committee and of the Programme Subcommittee
- 21<sup>st</sup> EURO THERM Seminar - Heat Transfer in Semi-Transparent Media-Fundamentals and Applications.  
Lyon, France  
3/5 February 1992  
85 participants - 12 countries  
Position: Member of the Scientific Committee
- 23<sup>rd</sup> International Symposium on Combustion.  
The Combustion Institute  
Orleans, France  
22/27 July 1990  
1038 participants - 31 countries  
Position: Member of the Scientific Committee and of the Programme Subcommittee
- International Conference on Mechanics of Two-phase Flows.  
National Taiwan University  
Taipei, Taiwan  
12/15 June 1989  
Position: Member of the Scientific Committee

## COORDINATION AND PARTICIPATION IN RESEARCH AND DEVELOPMENT PROJECTS

1. Title of the project: Protocolo entre o IA e o IST para apoio técnico e científico no âmbito das suas competências sobre prevenção e controlo integrados da poluição (PCIP)
- Acronym: PCIP/MTD - 2301  
Venue: Instituto Superior Técnico  
Date: 1 April 2007/31 March 2008  
Funding: Instituto do Ambiente  
Contract No.: 26/2007  
Consortium: IST (PT)  
Position: Coordinator of the project at IST. Research fellow.
2. Title of the project: Protocolo entre o IA e o IST para apoio técnico e científico no âmbito das suas competências sobre prevenção e controlo integrados da poluição (PCIP), nos termos do Decreto-Lei Nº 194/2000 de 21 de Agosto, nomeadamente na interface PCIP com matérias relacionadas e a sua aplicação ao contexto nacional
- Acronym: PCIP Interface  
Venue: Instituto Superior Técnico  
Date: 1 April 2007/31 March 2008  
Funding: Instituto do Ambiente  
Contract No.: 24/2007  
Consortium: IST (PT)  
Position: Coordinator of the project at IST. Research fellow
3. Title of the project: Energy Bus – Autocarro temático sobre energia e eficiência energética em Portugal
- Acronym: Energy Bus  
Venue: Instituto Superior Técnico  
Date: 1 January 2007/ 30 June 2009  
Funding: EDP (PT)  
Contract No.: PE 340  
Consortium: IDMEC (PT)  
Position: Co-coordinator of the project.
4. Title of the project: Sustainable urban renewal: energy efficient building for Africa
- Acronym: SURE AFRICA  
Venue: Instituto Superior Técnico  
Date: 1 January 2007/ 30 June 2009  
Funding: Intelligent Energy-Europe, European Commission  
Contract No.: EIE/06/274/SI2.447964  
Consortium: IDMEC (PT), UCAM (UK), ULUND (SW)  
Position: Co-coordinator of the project.
5. Title of the project: Strengthening municipal action on renewable energy in Central America
- Acronym: ENERGYCENTRAL  
Venue: Instituto Superior Técnico  
Date: 1 January 2007/ 31 December 2008  
Funding: Intelligent Energy-Europe, European Commission  
Contract No.: EIE/06/240/SI2.448125  
Consortium: IDMEC (PT), LMLG (UK)  
Position: Co-coordinator of the project.
6. Title of the project: Protocolo entre o IA e o IST para apoio técnico e científico no âmbito das suas competências sobre prevenção e controlo integrados da poluição (PCIP), nos termos do Decreto-Lei Nº 194/2000 de 21 de Agosto, nomeadamente na interface PCIP com matérias relacionadas e a sua aplicação ao contexto nacional
- Acronym: PCIP Interface  
Venue: Instituto Superior Técnico  
Date: 1 June 2006/ 31 May 2007  
Funding: Instituto do Ambiente  
Contract No.: 190/06  
Consortium: IST (PT)

- Position: Coordinator of the project at IST. Research fellow.
7. Title of the project: Protocolo entre o IA e o IST para apoio técnico no âmbito das suas competências sobre prevenção e controlo integrados da poluição
- Acronym: PCIP –N705
- Venue: Instituto Superior Técnico
- Date: 1 June 2006/ 31 May 2007
- Funding: Instituto do Ambiente
- Contract No.: 191/06
- Consortium: IST (PT)
- Position: Coordinator of the project at IST. Research fellow.
8. Title of the project: Early Market Introduction of New Energy Technologies in Liaison with Science and Industry
- Acronym: Eminent II
- Venue: Instituto Superior Técnico
- Date: 28 April 2006/27 September 2008
- Funding: Directorate-General for Energy and Transport, European Commission
- Contract No.: TREN/05/FP6EN/S07.56209/019886
- Consortium: SINTEF (NO), University of Manchester (UK), EUBIA (B), COGEN (B), Fh-ISI (D), CEA-LIS (F), CNL (PL), UV (H), ETA (I), ETH (CH), CERTH/ISFTA (GR), JR (A), Chalmers (SW)
- Position: Co-ordinator of the project at IST. Research fellow.
9. Title of the project: Procura - Green Fleet Procurement Models
- Acronym: PROCURA
- Venue: Instituto Superior Técnico
- Date: 1 January 2006/31 December 2008
- Funding: Intelligent Energy Europe, European Commission
- Contract No.: EIE/05/102/SI2.419855
- Consortium: Ecofys (NL), FAST (I), Nijmegen (NL), Terberg (NL), ENGVA (NL), ETA (I), KAPE (PL), Ford (D), NTDA (SP), UU (NL)
- Position: Co-ordinator of the project at IST. Research fellow.
10. Title of the project: Promoting the Use of Photovoltaic Systems in the Urban Environment through Demo Relay Nodes
- Acronym: PURE
- Venue: Instituto Superior Técnico
- Date: 1 January 2006/31 December 2008
- Funding: Intelligent Energy Executive Agency, European Commission
- Contract No.: EIE/05/051/SI2.450200
- Consortium: EVE (SP), SST (D), SAVONA (I), SEA (SL), ENV/TUC (GR)
- Position: Co-ordinator of the project at IST. Research fellow.
11. Title of the project: Monitoring and Control of Energy Consumption in Municipal Public Buildings over the Internet
- Acronym: ENERin TOWN
- Venue: Instituto Superior Técnico
- Date: 1 January 2006/30 June 2008
- Funding: Intelligent Energy Executive Agency, European Commission
- Contract No.: EIE/05/118/SI2.419653
- Consortium: EVE (SP), INEGA (S), LDK (GR), TEA (Ir), ADEME (FR), LEI (Li), AREAL(PT), ZREU (D), AI (I)
- Position: Co-ordinator of the project at IST. Research fellow.
12. Title of the project: Andean Energy Hub
- Acronym: ANDENERGY
- Venue: Instituto Superior Técnico
- Date: 1 January 2006/31 December 2007
- Funding: Intelligent Energy Europe, European Commission
- Contract No.: EIE/05/141/SI2.420262
- Consortium: CIRPS (IT), CIDES (Peru), ENERGY (Peru), ESPOL (Ecuador), CAN (Peru), ECO (Peru), ESANET (IT)
- Position: Co-ordinator of the project at IST. Research fellow.
13. Title of the project: Capacity Building on Business Opportunities for CDM Projects in China

Acronym: CDM China  
 Venue: Instituto Superior Técnico  
 Date: 1 January 2006/31 August 2007  
 Funding: External Actions of the European Community, European Commission  
 Contract No.: CN/ASIA PRO ECO II/04 (113210)  
 Consortium: CIRPS (IT), GEI (China), Helio International (FR), Ecosoluzioni Snc. (IT)  
 Position: Co-ordinator of the project at IST. Research fellow.

14. Title of the project: Protocolo entre o IA e o IST para apoio técnico e científico no âmbito das suas competências sobre prevenção e controlo integrados da poluição (PCIP), nos termos do Decreto-Lei Nº 194/2000 de 21 de Agosto, nomeadamente na interface PCIP com matérias relacionadas e a sua aplicação ao contexto nacional

Acronym: PCIP Interface  
 Venue: Instituto Superior Técnico  
 Date: 1 June 2005/ 31 May 2006  
 Funding: Instituto do Ambiente  
 Contract No.: 30/05  
 Consortium: IST (PT)  
 Position: Coordinator of the project at IST. Research fellow.

15. Title of the project: Protocolo entre o IA e o IST para apoio técnico no âmbito das suas competências sobre prevenção e controlo integrados da poluição

Acronym: PCIP –N705  
 Venue: Instituto Superior Técnico  
 Date: 1 June 2005/ 31 May 2006  
 Funding: Instituto do Ambiente  
 Contract No.: 42/2005  
 Consortium: IST (PT)  
 Position: Coordinator of the project at IST. Research fellow.

16. Nome do projecto: Local new energy technology implementation  
 Acrónimo: LETIT  
 Local: Instituto Superior Técnico  
 Data: May 2005/ July 2006  
 Agência Financiadora: Sixth Framework Programme, Priority 6.1.ii – Sustainable Energy Systems – European Commission  
 Nº do Contrato: SES6-CT-2004  
 Instituições envolvidas: ESD (UK); Utilicom (UK); GLA (UK); LBM (UK); Innova (IT); ECOA - Ecoazioni (IT); ASM Terni SPA (IT); Terni Municipality (IT); IDMEC – IST (PT); LABLEC - EDP (PT); AGENEAL (PT); AREAM (PT); ISE Fraunhofer (DE); Badenova (DE); Cityplan (CZ); RERA - South Bohemia (CZ); RASBR - South Bohemian Region (CZ); EC BREC (PL); PCT (PL); POME (PL).  
 Função: Coordenação científica do projecto.

17. Title of the project: Energy for Poverty Alleviation in Sahel  
 Acronym: IE4SAHEL  
 Venue: Instituto Superior Técnico  
 Date: 1 April 2005/ 31 March 2007  
 Funding: Intelligent Energy-Europe, European Commission  
 Contract No.: EIE/04/131/S07.40673  
 Consortium: ESD (UK), CRES (GR), ARC (NI)  
 Position: Scientific co-ordinator of the project.

18. Title of the project: HY-CO  
 Acronym: HY-CO  
 Venue: Instituto Superior Técnico  
 Date: 1 October 2004/30 September 2008  
 Funding: ERA-NET, European Commission  
 Contract No.: Cooperation protocol FCT/IST  
 Consortium: Fundação para a Ciência e a Tecnologia (FCT)  
 Position: Co-ordinator of the project at IST. Research fellow.

19. Title of the project: Eu-Asia University Partnership for Sustainable Development

Acronym: UNIPASUD  
 Venue: Instituto Superior Técnico  
 Date: 15 June 2003/ 15 November 2004  
 Funding: Asia-Link Programme, European Commission  
 Contract No.: ASI/B7-301/98/679-031  
 Consortium: CIRPS (I)  
 Position: Co-ordinator of the project at IST. Research fellow.

20. Title of the project: Capacity Building for Clean Development Mechanism in Sub-Saharan African Countries  
 Acronym: CDM África  
 Venue: Instituto Superior Técnico  
 Date: 6 June 2003/ 6 December 2004  
 Funding: Synergy Programme, European Commission  
 Contract No.: 7.623/D/02-001-SO7.21886  
 Consortium: CINAR (UK), TNO EEEPI (NL), ITC (S), Cogen Europe (B), WBP (D), CIRPS (I), ARC (Niger), CSIR (South Africa), CEEEZ (Zambia), EECG (Botswana); CEISA (Mozambique)  
 Position: Co-ordinator of the project at IST. Research fellow.

21. Title of the project: Business Opportunities for CDM Project Development in the Mediterranean  
 Acronym: CDM MEDA  
 Venue: Instituto Superior Técnico  
 Date: 14 May 2003/ 14 May 2005  
 Funding: Sinergy Programme, European Commission  
 Contract No.: 4.1041/D/02-003-SO7.21086  
 Consortium: NTUA (GR), JIN (NL), ALMEE (Lebanon), Bogaziçi University (Turkey), CDER (Marocco), ICTAF (Israel), MEMR (Jordaine), MOE (Siria), OEP (Egypt), Sonelgaz (Algeria), UM (Malta)  
 Position: Co-ordinator of the project at IST. Research fellow.

22. Title of the project: Early Market Introduction of New Energy Technologies by the OPET Network in Liaison with Science and Technology  
 Acronym: Eminent  
 Venue: Instituto Superior Técnico  
 Date: 1 April 2003/30 September 2005  
 Funding: Energy, Environment and Sustainable Development – Part B: Energy Programme, European Commission  
 Contract No.: NNE5/2002/75  
 Consortium: TNO (NL), SINTEF (N), UMIST (UK), FZJ (D), VTT Processes (FIN), RTU (Latvia), VUT (CR), RISOE (DN)  
 Position: Co-ordinator of the project at IST. Research fellow.

23. Title of the project: Protocolo entre o IA e o IST para apoio técnico e científico no âmbito das suas competências sobre prevenção e controlo integrados da poluição (PCIP), nos termos do Decreto-Lei Nº 194/2000 de 21 de Agosto, nomeadamente na interface PCIP com matérias relacionadas e a sua aplicação ao contexto nacional  
 Acronym: PCIP-Interface  
 Venue: Instituto Superior Técnico  
 Date: 1 April 2003/31 March 2004  
 Funding: Instituto do Ambiente  
 Contract No.: 19/2003  
 Consortium: IST (P)  
 Position: General co-ordinator of the project at European level. Research fellow.

24. Title of the project: Protocolo entre o IA e o IST para apoio técnico no âmbito das suas competências sobre prevenção e controlo integrados da poluição  
 Acronym: PCIP  
 Venue: Instituto Superior Técnico  
 Date: 1 April 2003/31 March 2004  
 Funding: Instituto do Ambiente  
 Contract No.: 18/2003  
 Consortium: IST (P)  
 Position: General co-ordinator of the project at European level. Research fellow.

25. Title of the project: Integrating Self Supply into End Use for Sustainable Tourism – Target Action C  
 Acronym: Green Hotel  
 Venue: Instituto Superior Técnico  
 Date: 1 April 2003/31 March 2003  
 Funding: Energy, Environment and Sustainable Development Programme – Part B: Energy Programme, European Commission  
 Contract No.: NNE5/2001/707  
 Consortium: AREAM (P), Quinta do Lorde (P), PAL – Planeamento e Arquitectura, Lda. (P), ITC (S), DLR (D), CIRPS (I), E4TECH (SW), FSI (D), Malmoe (S), ISLENET (B), Cenergia (DK), REAC (GR),  
 Position: Co-ordinator of the project at IST. Research fellow.
26. Title of the Project: The European Hydrogen (based) Society – target Action A  
 Acronym: HySociety  
 Venue: Instituto Superior Técnico  
 Date: 1 February 2003/31 January 2005  
 Funding: Energy Programme, European Commission  
 Contract No.: NNE5/2001/641  
 Consortium: SINTEF (N), VTT Energy (FI), INTA (SP), ULG (B), Vito (B) AVERE (B), VGB Powertech e.V. (D), Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung e.V. (D), EVA (A), ECN (NL), Sydkraft (S), NTUA (GR), ENEA (IT), ICSTM (UK), CNRS (FR), RF-Rogaland Research (N)  
 Position: General co-ordinator of the project at European level. Research fellow.
27. Title of the Project: PV Enlargement-Technology Transfer, Demonstration and Scientific Exchange Action for the Establishment of a Strong European PV Sector  
 Acronym: PVEnlargement  
 Venue: Instituto Superior Técnico  
 Date: 1 January 2003/31 December 2006  
 Funding: Energy Programme, European Commission  
 Contract No.: NNE5/2001/736  
 Consortium: WIP (D), Gehrlicher (D), FH Munich (D), ATB (AT), Vienna University of Technology (AT), University of Innsbruck (AT), Donau Universität Krems (AT), Viktor Kaplan Akademie (AT), TU Gabrovo (BG), Central Laboratory of Solar Energy & New Energy Sources (BG), SOLARTEC (CZ), Charles University of Prague (CZ), Brno University of Technology (CZ), TU Ostrava (CZ), University of West Bohemia (CZ), TU Liberec (CZ), CRES (GR), Agricultural University of Athens (GR), Szent Istvan University Gödöllő (HU), Università di Roma La Sapienza (IT), Università degli Studi di Firenze (IT), Municipality of Pistoia (IT), Warsaw University of Technology (IT), Universidade Nova de Lisboa (PT), Universitatea Politehnica din Bucuresti (RO)  
 Position: Co-ordinator of the project at IST. Research fellow.
28. Title of the project: Alternative Fuel for Industrial Gas Turbines  
 Acronym: AFTUR  
 Venue: Instituto Superior Técnico  
 Date: 1 January 2003/30 September 2007  
 Funding: Research DG, European Commission  
 Contract No.: ENK5-CT-2002-00662  
 Consortium: CNRS – LCSR (FR), Turbomeca (FR), Nuovo (FR), Pignone (IT), Alstom Power (UK), Aero and Industrial Technology (UK), Auxitrol (FR), CNRS – CORIA (FR), Institut Français du Pétrole (FR), QINETIQ (UK), AEA Technology (UK), University Trieste (IT), Istituto di Ricerche sulla Combustione – CNR (IT), Termiska Processer (S), University Athens (GR), University Twente (NL), University Roma 3 (IT), University Zaragoza (ES), University Lund (S), University Cranfield (UK), UNIVERSITY Manchester (UK), University Covilhã (PT)  
 Position: Co-ordinator of the project at IST. Research fellow.
29. Title of the project: Optimisation and Design of Biomass Combustion Systems  
 Acronym: OPTICOMB  
 Venue: Instituto Superior Técnico  
 Date: 1 January 2003/30 June 2006  
 Funding: Energy, Environment and Sustainable Development Programme, European Commission

Contract No.: ENK5-CT-2002-00693  
Consortium: TNO.MEP (NL), Technical University of Graz (A), Eindhoven University of Technology (NL), Vyncke (B)  
Position: Co-ordinator of the project at IST. Research fellow.

30. Title of the Project: The Fuel Cell Testing and standardization Network  
Acronym: FCTESTNET  
Venue: Instituto Superior Técnico  
Date: 1 January 2003/31 December 2005  
Funding: Research DG, European Commission  
Contract No.: ENG2-CT-2002-20657  
Consortium: VDI (D), JRC (B), ZSW (D), FEV (D), CEA (F), ENEA (IT), ECN (NL), TNO (NL), Catella Generics (S), HAW Hamburg (D)  
Position: Research fellow.

31. Title of the Project: Adaptation of a New Energy-and Timesaving Hard Anodizing Process for Different Al-alloys and tests in Selected European Industrial Applications  
Acronym: Pulcoat System  
Venue: Instituto Superior Técnico  
Date: 1 January 2003/31 December 2005  
Funding: Energy Programme, European Commission  
Contract No.: NNE5-2001-00402  
Consortium: Fischer (D), PHM Engineering (B), LEDA (UK), GSE (D), AEROHÉLICE (P), TEE (D)  
Position: Co-ordinator of the project at IST. Research fellow.

32. Title of the project: Renewable Energy Solutions for Islands – Target Action A  
Acronym: RenewIslands  
Venue: Instituto Superior Técnico  
Date: 1 January 2003/31 December 2004  
Funding: Energy, Environment and Sustainable Development – Part B: Energy Programme, European Commission  
Contract No.: NNE5/2002/73  
Consortium: Norsk Hydro (N), E4TECH (SW), ITC (SP), AREAM (PT), NTUA (GR), ISLENET (B)  
Position: General co-ordinator of the project at European level. Research fellow

33. Title of the project: Clean Air 2003  
Acronym: Clean Air 2003  
Venue: Instituto Superior Técnico  
Date: 1 January 2003/31 December 2003  
Funding: Energy and Transport, European Commission  
Contract No.: 4.1031/S/02-007/2002  
Consortium: IST (P)  
Position: General co-ordinator of the project at European level. Research fellow.

34. Title of the project: POWERCLEAN Thematic Network for Clean Power Generation  
Acronym: POWERCLEAN  
Venue: Instituto Superior Técnico  
Date: 1 November 2002/30 October 2005  
Funding: Energy, Environment and Sustainable Development Programme, European Commission  
Contract No.: ENK5-CT-2002-20625  
Consortium: University of Ulster (UK), IEA (UK), University of Stuttgart (D), University of Essen (D), Electricité de France (F), ENEL Research (I), Senergy (S)  
Position: Co-ordinator of the project at IST. Research fellow.

35. Title of the project: New and Renewable Energies Electricity and Water in Outermost Regions  
Acronym: ERA – ISLA  
Venue: Instituto Superior Técnico  
Date: 1 November 2002/30 October 2003  
Funding: Energy, Environment and Sustainable Development Programme, European Commission  
Contract No.: ENK5-CT-2002-80651  
Consortium: ADEME (FR), OMDE (FR), ITC (SP), ITYER (SP), CIEMAT (SP), AREAM (PT), IDMEC-Porto (PT), INESC-Porto (PT), Electricidade dos Açores (PT)

Position: General co-ordinator of the project at European level. Research fellow.

36. Title of the project: Apoio no Desenvolvimento e Implementação do programa Nacional sobre Alterações Climáticas: Questões dos Países em Desenvolvimento

Acronym: PNAC-PD

Venue: Instituto Superior Técnico

Date: 30 July 2002/29 July 2003

Funding: Instituto do Ambiente

Contract No.: Protocolo Nº 105/2002

Consortium: IST (PT)

Position: Co-ordinator of the project at IST. Research fellow.

37. Title of the project: Estudo de Impacte Ambiental para a Nova Central Eléctrica de Palmarejo

Venue: Instituto Superior Técnico

Date: 19 July 2002/18 October 2002

Funding: Electra

Consortium: IDMEC (P)

Position: Co-ordinator of the project at IST. Research fellow.

38. Title of the project: Protocolo entre o IA e o IST para apoio técnico no âmbito das suas competências sobre prevenção e controlo integrados da poluição (PCIP)

Acronym: PCIP

Venue: Instituto Superior Técnico

Date: 1 July 2002/30 September 2003

Funding: Instituto do Ambiente

Contract No.: 74/2003

Consortium: IST (P)

Position: General co-ordinator of the project at European level. Research fellow.

39. Title of the project: Renewables 2002 – International Conference on New and Renewable Technologies for sustainable Development

Acronym: Renewables 2002

Venue: Instituto Superior Técnico

Date: 1 June 2002/31 October 2002

Funding: DG for Energy and Transport, European Commission

Contract No.: 4.1030/S/01-008/2001

Consortium: IST (PT)

Position: Co-ordinator of the project at IST. Research fellow.

40. Title of the project: Heating and Fueling Landal for a Community with 100% Renewable Energy Supply

Acronym: Biogas

Venue: Instituto Superior Técnico

Date: 1 May 2002/30 September 2002

Funding: Altener Programme, European Commission

Contract No.: 4.1030/C/00-019/2000

Consortium: Fairtec (F), Solagro (F), ESD (UK), EDL (UK), Ing. Claudio Bortulu (P), BLT (D), Department of Environmental Affairs of Apeldoorn (NL)

Position: Co-ordinator of the project at IST. Research fellow.

41. Title of the project: Mecanismos de Apoio às Fontes Renováveis

Acronym: Certificados Verdes

Venue: Instituto Superior Técnico

Date: 30 April 2002/29 July 2002

Funding: DGE

Consortium: IST (PT)

Position: Co-ordinator of the project at IST. Research fellow.

42. Title of the project: Prestação de Serviço para Elaboração de Manual Relativo à Realização de Auditorias Energéticas Ambientais às Instalações de Cogeração

Venue: Instituto Superior Técnico

Date: 9 January 2002

Funding: DGE

Position: Co-ordinator of the project at IST. Research fellow.

43. Title of the project: Evolution Control Technology for Sustainable Thermal Processes

Acronym: ECOTHERM

Venue: Instituto Superior Técnico  
Date: 1 January 2002/31 December 2004  
Funding: Research DG, European Commission  
Contract No.: ENK6-CT-2001-00546  
Consortium: TNO (NL), ENEA (I), CS Systèmes d'Information S.A. (F), IrRadiare (P), Azienda Gas Energia Ambiente S.p.A. (I), AVR Bedrijven N.V. (NL)

Position: Co-ordinator of the project at IST. Research fellow.

44. Title of the project: Sustainable Development of Croatian Capacity in CHP (combined heat and power) sector  
Acronym: Life Third Countries  
Venue: Instituto Superior Técnico  
Date: 1 January 2002/30 June 2004  
Funding: Life-Financial Instrument for the Environment, European Commission  
Contract No.: LIFE00/TCY/CRO/000084  
Consortium: CTT (HR), NTUA (GR)  
Position: Co-ordinator of the project at IST. Research fellow.

45. Title of the project: Promotion of Tri-Generation Technologies in the Tertiary Sector in Mediterranean Countries (Greece, Italy, Spain and Portugal)  
Acronym: Trigemed  
Venue: Instituto Superior Técnico  
Date: 1 January 2002/31 December 2003  
Funding: European Commission  
Contract No.: 4.1031/Z/01-130/2001  
Consortium: LDK (GR), IDEA (I), ISNOVA (I), CRES (GR), ISQ (P), ADEME (FR), MIPAD (GR)  
Position: Co-ordinator of the project at IST. Research fellow.

46. Title of the project: Guide for Renewable Energy Installations to Promote Biomass, Photovoltaics and Solar Thermal in the EU  
Acronym: GreenPro  
Venue: Instituto Superior Técnico  
Date: 1 January 2002/31 December 2003  
Funding: Altener Programme, European Commission  
Contract No.: 4.1030/Z/01-035/2001  
Consortium: ECOFYS (NL), ICAEN (SP), Systèmes Solaires (F), ISES Italia (I), IDIS (I), James & James (UK), DGS (D), DLR (D)  
Position: Co-ordinator of the project at IST. Research fellow.

47. Title of the project: Study of Regional and Municipal Energy Management in the Area of Energy Efficiency and Renewable Energy  
Acronym: Municipale Aid  
Venue: Instituto Superior Técnico  
Date: 1 January 2002/30 June 2003  
Funding: DG for Energy and Transport, European Commission  
Contract No.: 4.1030/Z/01-143/2001  
Consortium: Ente Vasco de la Energia (S), Building Research Establishment (UK), Rhônalpénergie-Environnement (A), O.Ö. Energiesparverb (A), Instituto Enerxético de Galicia (S)  
Position: Co-ordinator of the project at IST. Research fellow.

48. Title of the project: Future Perspectives of CO<sub>2</sub> - Removal at Power Plants in Europe (Delphi-CO<sub>2</sub>-removal)  
Acronym: Delphi  
Venue: Instituto Superior Técnico  
Date: 1 January 2002/31 March 2003  
Funding: DG for Research, European Commission  
Contract No.: ENK5-CT-2001-80350  
Consortium: Unversitaet Gesamthochschule Essen (D)  
Position: Co-ordinator of the project at IST. Research fellow.

49. Title of the project: Clean Urban Transport for Europe  
Acronym: CUTE  
Venue: Instituto Superior Técnico  
Date: 23 November 2001/22 June 2006

Funding: DG for Energy and Transport, European Commission  
Contract No.: NNE5/2000/208  
Consortium: Evobus (D), Polis Iasbl (B), Hamburger Hochbahn Aktiengesellschaft (D), Hamburgische Electricitäts-Werke AG (D), PE Product Engineering GmbH (D), London Bus Services Limited (UK), Gemeentevervoerbedrijf Amsterdam (NL), Shell Hydrogen B.V. (NL), BP International Plc (UK), Transports de Barcelona (ES), Empresa Municipal de Transportes (ES), Autobus de la Ville de Luxembourg (LU), Fédération Luxembourgeoise des Exploitants D'Autobus et D'Autocars ASBL (LU), Stuttgarter Strassenbahn AG (D), Sociedade de Transportes Colectivos do Porto, SA (P), Norsk Hydro ASA (NO), Universitate Stuttgart (D), AB Storstockholms Lokaltrafik (S), Sydkraft AB (S), MVV Verkehr AG (D), Planet Planungsgroupe Energie und Technik (D), Stakraft SF (NO).

Position: Co-ordinator of the project at IST. Research fellow.

50. Title of the project: System-Development, Build, Field Installation and European Demonstration of a Virtual Fuel Cell Power Plant, Consisting of Residential Micro-CHPs  
Acronym: Vaillant  
Venue: Instituto Superior Técnico  
Date: 30 November 2001/31 March 2005  
Funding: DG for Energy and Transport, European Commission  
Contract No.: NNE5/2000/208  
Consortium: Vaillant GmbH (D), Plug Power Holland (NL), The European Association for the Promotion of Cogeneration (B), Universitaet GH Essen (D), Deutsches Zentrum Fuer Luft-und Raumfahrt E.V. (DLR) (D), Sistemas de Calor S.L. (ES), N.V. Nederlandse Gasunie (NL), Ruhrgas Aktiengesellschaft (D), E.ON energie AG (D).

Position: Co-ordinator of the project at IST. Research fellow.

51. Title of the project: Prestação de Serviço para Elaboração de Documento sobre o Estado de Arte das Tecnologias de Carvão  
Acronym: Tecnologias de Carvão  
Venue: Instituto Superior Técnico  
Date: 24 October 2001/February 2002  
Funding: DGE  
Position: Co-ordinator of the project at IST. Research fellow.

52. Title of the project: Prestação de Serviço para Elaboração de Projecto para Portaria Relativo às Emissões Poluentes por Instalações de Cogeração  
Venue: Instituto Superior Técnico  
Date: 10 October 2001  
Funding: DGE  
Position: Co-ordinator of the project at IST. Research fellow.

53. Title of the project: Protocolo entre o Polo Científico da Madeira, o IST e a Agência Regional de Energia e Ambiente da Região Autónoma da Madeira  
Acronym: Madeira Tecnopolo  
Venue: Instituto Superior Técnico  
Date: 28 September 2001  
Funding: Madeira Tecnopolo  
Consortium: Madeira Tecnopolo (P), AREAM (P)  
Position: Co-ordinator of the project at IST. Research fellow.

54. Title of the project: Euro Summer School: Short Courses on Sustainability Assessment  
Acronym: SUSTAIN II  
Venue: Instituto Superior Técnico  
Date: 1 September 2001/31 August 2004  
Funding: DG for Science, Research and Development, European Commission  
Contract No.: HPCF-CT-2001-00376  
Position: General co-ordinator of the project at European level. Research fellow.

55. Title of the project: Protocolo entre a DGA e o IST para Apoio Técnico no Âmbito das suas Competências sobre Prevenção e Controlo Integrados da Poluição  
Acronym: PCIP  
Venue: Direcção Geral do Ambiente  
Date: 2 July 2001/1 July 2002  
Funding: Direcção Geral do Ambiente

Contract No.: 59/2001  
 Consortium: IST (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

56. Title of the project: Organisation for the Promotion of Energy Technologies in Portugal-II  
 Acronym: OPET II  
 Venue: Instituto Superior Técnico  
 Date: 1 July 2001/30 June 2002  
 Funding: Programme Energy, Environment and Sustainable Development, European Commission  
 Contract No.: NNE5/2001/101-SI2.318297  
 Consortium: Centro para a Conservação de Energia (P), Instituto de Engenharia de Sistemas e Computadores do Porto (INESC Porto) (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

57. Title of the project: Facilitating the Kyoto Protocol Objectives by Clean Development Mechanism in Small Islands Developing States – CDMSIDS Project  
 Acronym: CDM  
 Venue: Instituto Superior Técnico  
 Date: 1 January 2001/31 December 2001  
 Funding: ENV.3, European Commission  
 Consortium: NOA – National Observatory of Athens (GR)  
 Contract No.: SUBV/00/256161  
 Consortium: NOA (GR)  
 Position: General co-ordinator of the project at European level. Research fellow.

58. Title of the project: Steering Group for Clean Electricity and Heat Production with Co-utilisation of Biomass and Coal and Reduced Carbon Dioxide Emissions (Phase 1)  
 Acronym: CLEANSTEER  
 Venue: Instituto Superior Técnico  
 Date: 1 January 2001/30 September 2001  
 Funding: Programme Energy, Environment and Sustainable Development, European Commission  
 Contract No.: ENK5-CT-2000-80127  
 Consortium: University of Ulster (UK), CRE Group (UK), Universität Stuttgart (D), Universität Gesamthochschule Essen (D), Electricité de France (F), ENEL Produzione SpA (I).  
 Position: Co-ordinator of the project at IST. Research fellow.

59. Title of the project: Contrato de Prestação de Serviços Estudo de Previsão e Comparação de Impactos Decorrentes da Actividade Industrial, Relevantes para Avaliação dos Efeitos Associados à Expansão da Zona Industrial da Marinha Grande e Deslocalização de Indústrias Vidreiras  
 Acronym: Marinha Grande  
 Venue: Instituto Superior Técnico  
 Date: 20 December 2000  
 Funding: Câmara Municipal da Marinha Grande  
 Contract No.: 52/2000  
 Position: Co-ordinator of the project at IST. Research fellow.

60. Title of the project: Experimental, Numerical and Theoretical Investigation on Pressurised Pulverised Coal Combustion  
 Acronym: Pressurised Coal  
 Venue: Instituto Superior Técnico  
 Date: 1 November 2000/31 October 2002  
 Funding: Specific ECSC RTD Programme  
 Contract No.: 7200-PR-104  
 Consortium: RWE Power Aktiengesellschaft (D), RWTH (D), Public Power Corporation of Greece (GR), Universität-GH Essen (D).  
 Position: Co-ordinator of the project at IST. Research fellow.

61. Title of the project: Organisation for the Promotion of Energy Technologies in Portugal  
 Acronym: OPET I  
 Venue: Instituto Superior Técnico  
 Date: 1 May 2000/30 April 2001  
 Funding: Energy Sub-Programme, European Commission

Contract No.: NNE5/1999/101  
Consortium: Centro para a Conservação de Energia (P), Instituto de Engenharia e Computadores do Porto (P)

Position: Co-ordinator of the project at IST. Research fellow.

62. Title of the project: New and Renewable Energy Sources for Islands and Remote Regions  
Acronym: EURO-ISLAS  
Venue: Instituto Superior Técnico  
Date: 1 March 2000/28 February 2002  
Funding: Energy Sub-Programme, European Commission  
Contract No.: NNE5/1999/136  
Consortium: National Technical University of Athens (GR), AREAM-Agência Regional da Energia e Ambiente da Região Autónoma da Madeira (P), GDP-Gás de Portugal, SGPS, S.A. (P), Jenbacher AG (A), Universität GH Essen (D), Centro Interuniversitario di Ricerca sui Paesi in via di Sviluppo-Università degli Studi di Roma (I), Deutsches Zentrum für Luft und Raumfahrt e.V. (D), MBM Industrieanlagen (D), Region of Crete - Regional Energy Agency (GR), Instituto Tecnológico de Canarias, S.A. (E), Islenet (B), E4Tech - Bauen & Foradini (CH)

Position: General co-ordinator of the project at European level. Research fellow.

63. Title of the project: Euro Summer School: Short Courses on Sustainability Assessment  
Acronym: SUSTAIN I  
Venue: Instituto Superior Técnico  
Date: 1 January 2000/28 February 2002  
Funding: Human Potential Programme, European Commission, DG Research  
Contract No.: HPCF-CT-1999-00165  
Position: General co-ordinator of the project European level.

64. Title of the project: Assistance to Energy Implementation in Mozambique  
Acronym: Synergy Mozambique  
Venue: Instituto Superior Técnico  
Date: 1 January 2000/30 June 2001  
Funding: Synergy Programme, European Commission  
Contract No.: 4.1041/D/99-043  
Consortium: CEISA (MÇ), NTUA (GR), SOMAGUE (PT), PARTEX (PT)  
Position: General co-ordinator of the project at European level. Research fellow.

65. Title of the project: Sistema de Queima a Gás Natural para Aplicação em Fornos Cerâmicos de Barro Vermelho  
Venue: Instituto Superior Técnico  
Date: October 1999  
Funding: PEDIP, Portuguese Economy Ministry  
Consortium: Macrotec (P), Metalcértima (P)  
Position: Research fellow. Coordinator.

66. Title of the project: Prestação de Serviços para Elaboração de um Sistema de Gestão Ambiental do Conselho do Barreiro  
Acronym: CMBarreiro  
Venue: Instituto Superior Técnico  
Date: 21 October 1999  
Funding: Câmara Municipal do Barreiro (P)  
Consortium: IrRadiare (P).  
Position: Co-ordinator of the project at IST. Research fellow.

67. Title of the project: Project of Climate Changes, Working Group of Technologies Development and Transfer  
Acronym: DGA  
Venue: Instituto Superior Técnico  
Date: 14 October 1999/31 December 2000  
Funding: PIDDAC da Direcção Geral do Ambiente (P)  
Position: Co-ordinator of the project at IST. Research fellow.

68. Title of the project: Renewables 2000 - Euro Conference on New and Renewable Technologies for Sustainable Development  
Acronym: Renewables 2000  
Venue: Instituto Superior Técnico

Date: 12 August 1999/11 July 2003  
Funding: DG Research, Human Potential Programme, European Commission  
Contract No.: HPCF-CT-1999-00177  
Position: General co-ordinator of the project at European level.

69. Title of the project: Collaboration Agreement under the scope of the project entitled Assistance to Energy Policy Implementation in Cape Verde  
Acronym: Synergy Cabo Verde  
Venue: Instituto Superior Técnico  
Date: 30 June 1999  
Contract No.: 4.1041/D/98-04  
Funding: DG XVII, SYNERGY Programme, European Commission  
Consortium: PARTEX (P)  
Position: General co-ordinator of the project at European level. Research fellow.

70. Title of the project: Cooperação Científica e Técnica Luso-Francesa - Programa 1999  
Acronym: Embaixada de França  
Venue: Instituto Superior Técnico  
Date: 1 April 1999/31 December 1999  
Funding: Instituto de Cooperação Científica e Tecnológica (P)  
Contract No.: 304/B/França  
Consortium: French Embassy (P)  
Position: Co-ordinator of the project at IST. Research fellow.

71. Title of the project: Clean Air V - Fifth International Conference on Technologies and Combustion for a Clean Environment  
Acronym: Clean Air V  
Venue: Instituto Superior Técnico  
Date: 1 January 1999/31 January 2001  
Funding: DG XVII, THERMIE Programme, European Commission  
Contract Number: DIS/1695/98-PT  
Consortium: ICSTM (UK)  
Position: General co-ordinator of the project at European level. Research fellow.

72. Title of the project: Analysis of the Potential for Market Penetration of EU Innovative Renewable Energy Technologies on Cabo Verde Islands  
Acronym: Cabo Verde  
Venue: Instituto Superior Técnico  
Date: 1 October 1998/30 September 2000  
Funding: DG XVII, THERMIE Programme, European Commission  
Contract Number: STR/1938/98-PT  
Consortium: PARTEX (P), NTUA (GR), King's College (UK).  
Position: General co-ordinator of the project at European level. Research fellow.

73. Title of the project: PHETRA  
Acronym: Phetra  
Venue: Instituto Superior Técnico  
Date: 1 June 1998/31 May 2000  
Funding: Innovation and Technology Transfer Programme, European Commission  
Contract Number: RSE 072  
Consortium: CEA/GRETh (F), F.I.R.E. (I), CRES (GR).  
Position: Co-ordinator of the project at IST. Research fellow.

74. Title of the project: Fundamental Improvements in Radiative Heat Transfer  
Acronym: Radiare  
Venue: Instituto Superior Técnico  
Date: 1 April 1998/31 March 2005  
Funding: DG XII, TMR Programme, European Commission  
Contract Number: FMRX-CT98-0224  
Consortium: Università degli Studi di Napoli Federico II (I), Deutsche Forschungsanstalt für Luft-und-Raumfahrt e.V.-Stuttgart (D), University of Erlangen (D), National Technical University of Athens (GR), Tampere University of Technology (FIN), International Flame Research Foundation (NL).  
Position: Co-ordinator of the project at IST. Research fellow.

75. Title of the project: Desenvolvimento e Aplicação de Engenharia para a Modelização, Simulação e Otimização de Fornos Industriais  
 Venue: IDMEC  
 Date: 1 February 1998  
 Funding: PRAXIS XXI Programme - Medida 3, Acção 3.1  
 Consortium: University of Madeira (P)  
 Position: Co-ordinator of the project at IDMEC. Research fellow.
76. Title of the project: An Expert System for Optimal Insertion of Intensified Energy Saving Technologies in the Industrial Processes  
 Acronym: EXSYS II  
 Venue: Instituto Superior Técnico  
 Date: 1 February 1998/31 January 2001  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract Number: JOE3-CT97-0070  
 Consortium: Air Liquide (F), TNO (NL), Université de Liège (B), University of Manchester (UK), University of Patras (GR).  
 Position: Co-responsible for the project in IST. Research fellow.
77. Title of the project: An Innovative System Promoting the Introduction of Clean Technologies in Industry  
 Acronym: Clean Tec  
 Venue: Instituto Superior Técnico  
 Date: 1 January 1998/31 December 2000  
 Funding: DG XII, Programme LIFE, European Commission  
 Contract Number: LIFE97 ENV/GR/000384  
 Consortium: National Technical University of Athens (GR), CLOTEFI (GR), CITEVE (P), TAXSTA S.A. (GR).  
 Position: Co-ordinator of the project at IST. Research fellow.
78. Title of the project: New Industrial Furnaces of Higher Thermal Efficiency through Intensification of Heat Transfer from Flames  
 Acronym: EURONITE  
 Venue: Instituto Superior Técnico  
 Date: 1 January 1998/30 September 2000  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract Number: JOE3-CT97-0083  
 Consortium: CINAR (UK), Ruhr-Universität Bochum (D), Technische Universiteit Delft (NL), Gaswärme - Institut e.V. (D), Hermann Heye KG (D), Faculté Polytechnique de Mons (B), WS Wärmeprozessstechnik GmbH (D).  
 Position: Co-ordinator of the project at IST. Research fellow.
79. Title of the project: An Expert System to Integrate Renewable Energy Sources in European Energy Supply System  
 Acronym: ES/REN  
 Venue: Instituto Superior Técnico  
 Date: 1 December 1997/30 November 2000  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract Number: JOS3-CT97-0020  
 Consortium: Università degli Studi di Roma La Sapienza (I), SYSIN Spa (I), Loughborough University (UK), Université de Provence (F).  
 Position: Co-ordinator of the project at IST. Research fellow.
80. Title of the project: Estudo das Condições de Operação das Instalações de Cogeração com Motores Diesel  
 Acronym: Cogeração II  
 Venue: Instituto Superior Técnico  
 Date: December 1997/December 1999  
 Funding: Direcção Geral de Energia (P)  
 Contract Number:  
 Consortium: Instituto Superior Técnico (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

81. Title of the project: The Application of Fuzzy Logic, Neural Networks and Computational Fluid Dynamics in the Control of Coal Fired Utility Boilers for Optimal Combustion and NO Emissions  
 Acronym: CANFUB  
 Venue: Instituto Superior Técnico  
 Date: 1 July 1997/30 June 2000  
 Funding: DG XVII, ECSC PROGRAMME, European Commission  
 Contract Number: 7220-ED-090  
 Consortium: CINAR (UK), ENEL (I)  
 Position: Co-ordinator of the project at IST. Research fellow.
82. Title of the project: COPPEF II  
 Acronym: COPPEF II  
 Venue: Instituto Superior Técnico  
 Date: 5 May 1997  
 Funding: TNO Prins Maurits  
 Contract Number: 95/160/PML  
 Consortium: TNO Prins Maurits (NL)  
 Position: Co-ordinator of the project at IST. Research fellow.
83. Title of the project: Desenvolvimento de um Sistema de Suspensão de Linha Quente de Fusão e Transporte de Vidro numa Linha de Produção Automatizada  
 Venue: Instituto Superior Técnico  
 Date: 1 March 1997/31 August 1999  
 Funding: SINDEPEDIP - Regime de Apoio à Investigação e Desenvolvimento - Ministério da Economia  
 Contract Number: Medida 3.2 - Acção B, Processo Nº 25/00210  
 Consortium: Santos Barosa, S.A. (P), IDMEC (P)  
 Position: Co-ordinator of the project at IST. Research fellow.
84. Title of the project: Clean Air IV - Fourth International Conference on Technologies and Combustion for a Clean Environment  
 Acronym: Clean Air IV  
 Venue: Instituto Superior Técnico  
 Date: 1 January 1997/31 December 1997  
 Funding: DG XVII, THERMIE Programme, European Commission  
 Contract Number: DIS/1236/97-PT  
 Consortium: ICSTM (UK)  
 Position: General co-ordinator of the project at European level. Research fellow.
85. Title of the project: Estudo das Condições de Operações das Instalações de Cogeração com Motores Diesel  
 Acronym: Cogeração I  
 Venue: Instituto Superior Técnico  
 Date: 27 December 1996/27 December 1997  
 Funding: Direcção Geral de Energia  
 Consortium: Instituto Superior Técnico (P)  
 Position: Co-ordinator of the project at IST. Research fellow.
86. Title of the project: Promotion of Energy Efficient Technologies in the High Temperature Industries in the Central and Eastern European Countries  
 Venue: Instituto Superior Técnico  
 Date: 1 November 1996/31 December 1997  
 Funding: DG XVII, Programme THERMIE, European Commission  
 Contract No.: DIS-788-96 GR/PO/UK/FR/D  
 Consortium: Centre for Renewable Energy Sources (GR), Instituto Superior Técnico (P), Imperial College of Science and Technology (UK), ADERSA (F), Association of Greek Chemists (GR), FIZ Karlsruhe (D).  
 Position: Co-ordinator of the project at IST. Research fellow.
87. Title of the project: ACORDE - Development of Advanced Control Methodologies using Reliable Multi-Detection Sensors for Boilers  
 Acronym: ACORDE  
 Venue: Instituto Superior Técnico  
 Date: 1 October 1996/30 September 1999  
 Funding: DG XII, Programme BRITE, European Commission

Contract No.: BRPR-CT96-0198  
Consortium: Tecnatom (E), EDP (P), ENDESA (E), AEA (UK), KEMA (NL), OMAS (GR)  
Position: Scientific coordination of the project at European level. Responsible for the project in IST. Research fellow.

88. Title of the project: APEX - High Performance Computing for Process Engineering Awareness and Promotion Exercise  
Acronym: APEX  
Venue: Instituto Superior Técnico  
Date: 1 May 1996/30 April 1998  
Funding: DG XIII, Programme ESPRIT, European Commission  
Contract No.: EP20259  
Consortium: IST (P), Paras Ltd. (UK), DRAL (UK)  
Position: Co-ordinator of the project at IST. Research fellow.

89. Title of the project: Fuel Blends - Production and Utilization of High Quality Fuel Blends from Industrial Wastes and Coal for Heat and Power Generation - Textile Waste Coprocessing  
Acronym: Fuel Blends  
Venue: Instituto Superior Técnico  
Date: 1 January 1996/31 December 1998  
Funding: DG XII, Programme JOULE, European Commission  
Contract No.: JOF3CT95-0010  
Consortium: DMT-ITZ (D), WWU (D), STFI (D), IST (P), CITEVE (P), LTH (SE), KEMA (NL), FECHNER (D), TSO (D), TSKT (D), ICI (UK), IFRF (NL), UMSR FATM (D), RUB (D), DMT-IUV (D), UU (UK), DMT-IKB (D), PCI (D), TUT (FN), GU (SE), Ahlstrom (FN), VEAG (D), BTU (D), RWE (D)  
Position: Coordination and management of a subproject at European level. Research fellow.

90. Title of the project: EX-LIBRIS - Expert System for Energy Efficiency and Pollution Abatement in Industry  
Acronym: EX-LIBRIS  
Venue: Instituto Superior Técnico  
Date: 1 January 1996/31 December 1998  
Funding: DG XII, Programme JOULE, European Commission  
Contract No.: JOE3-CT95-0040  
Consortium: IST (P) FPM (B), ICSTM (UK), CRES (GR), SP (P), LM (P), GRETh (F), SEPR (F), UKL (B), TITAN (GR)  
Position: Coordination and management of a project at European level. Research fellow.

91. Title of the project: MICA - A Model for CFD Applications  
Acronym: MICA  
Venue: Instituto Superior Técnico  
Date: 1 January 1996/31 December 1997  
Funding: DG XII, Programme ESPRIT, European Commission  
Contract No.: 20966  
Consortium: CHAM (UK), CMR (NL), Colt-VR (UK), BRE (UK), Hoogovens (NL), INRIA (F), NTU-Athens (GR), Comprimo (NL), CFE/SMHI (S), TU-Lisbon (P), LSTM-Erlangen (D), LITEC-CPS (E), Vattenfall (S), WAT&G (UK), IFRF (NL), Parsytec (D), University of Zaragoza (E)  
Position: Co-ordinator of the project at IST. Research fellow.

92. Title of the project: Performance Prediction in Advanced Pulverised Coal-fired Utility Boilers  
Venue: Instituto Superior Técnico  
Date: 1 January 1996/31 December 1997  
Funding: DG XII, Programme JOULE, European Commission  
Contract No.: JOF3-CT95-0005  
Consortium: IST(P), EDP (P), ENDESA (E), CIRCE (E), ENEL (I), BEL (UK), RWE (D), IVD-US (D), NTUA (GR), IC-RR (UK), ICSTM (UK)  
Position: Coordination and management of a subproject at European level. Research fellow.

93. Title of the project: VADO LIGURE Coal Reburning Demonstration Project  
Acronym: VADO LIGURE

Venue: Instituto Superior Técnico  
Date: 1 October 1995/30 August 1999  
Funding: DG XVII, Programme THERMIE, European Commission  
Contract No.: SF 119-95  
Consortium: ENEL (I), ANSALDO (I), IVD-US (D), EDP (P), Mitsui Babcock Energy Ltd. (UK), Power Gen (UK), ESB (IE), James Howden (UK), EDF (F)  
Position: Co-ordinator of the project at IST. Research fellow.

94. Title of the project: Joint Energy and Environmental Protection Project  
Venue: Instituto Superior Técnico  
Date: 1 September 1994/31 August 1997  
Funding: DG XII, TEMPUS Programme, European Commission  
Contract No.: S\_JEP-07397-94  
Consortium: Silesian Technical University (PL), Technische Universität Clausthal (D), Technische Universität Carolo-Wilhelmina zu Braunschweig (D), Faculté Polytechnique de Mons (B), IST (P), Université Catholique de Louvan (B), University of Ulster (UK), IFRF (NL), CUTEC-GmbH (D)  
Position: Co-ordinator of the project at IST. Research fellow.

95. Title of the project: High Performance Parallel Computing for Process Engineering Simulation  
Venue: Instituto Superior Técnico  
Date: 11 May 1994/10 May 1997  
Funding: DG XIII, ESPRIT European Commission  
Consortium: IST (P), EDP (P), ICI (Tioxide) (UK), ICI (Engineering) (UK), SERC Daresbury Laboratories (UK), Paras (UK)  
Position: Co-ordinator of the project at IST. Research fellow.

96. Title of the project: Fouling of Combustion Chambers and High Temperature Filters  
Venue: Instituto Superior Técnico  
Date: 1 May 1994/31 July 1996  
Funding: DGXII, Programme JOULE-II Ext. European Commission  
Contract No.: JOU2-CT94-0322  
Consortium: NEL (UK), GRETh (F), IC-RR (UK), GCU (UK), IST (P)  
Position: Co-ordinator of the project at IST. Research fellow.

97. Title of the project: Novel Compact Steam Reformer for Fuel Cells, with Heat Generation by Catalytic Combustion, Augmented by Induction Heating  
Venue: Instituto Superior Técnico  
Date: 1 April 1994/30 September 1997  
Funding: DG XII, Programme BRITE-Euram II European Commission  
Contract No.: BE7713  
Consortium: Gastec N.V. (NL), EA Tech. Lim. (UK), AEA Tech. Harwell (UK), BCN (NL), Degussa (D), IST (P), Powergen (UK), TGI (E)  
Position: Co-ordinator of the project at IST. Research fellow.

98. Title of the project: Atmospheric Pressure Combustion of Pulverised Coal and Coal based Blends for Power Generation  
Venue: Instituto Superior Técnico  
Date: 1 February 1994/31 January 1996  
Funding: DGXII, Programme JOULE-II Ext. European Commission  
Contract No.: JOU2-CT93-0380  
Consortium: IFRF (NL), University of Bochum (D), Tecnars (I), TPS (S), TU Graz (A), Babcock Energy (UK), Elsamprojekt (DK), TU Lyngby (DK), CSM (I), ICL-RR (UK), University of Edinburgh (UK), ICSTM (UK), CINAR (GR), IST (P), EDP (P), University of Stuttgart (D), KEMA (NL), Fechner (D), TU Delft (NL)  
Position: Co-ordinator of the project at IST. Research fellow.

99. Title of the project: Optimização de um Projecto de Forno de Vidro End-Port de Grande Dimensão  
Venue: Santos Barosa, Marinha Grande  
Date: 1993/1995  
Funding: Santos Barosa (P)  
Consortium: IDMEC (P), Santos Barosa (P)  
Position: Co-ordinator of the project at IST. Research fellow.

100. Title of the project: Simulação, Análise, Optimização em Tempo Real de Fornos Industriais  
Venue: Instituto Superior Técnico

Date: 1 October 1993/30 September 1995  
 Funding: Programme STRIDE, Measure D, European Commission  
 Contract No.: STRD/ENR/0118  
 Consortium: IST (P), CIVE (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

101. Title of the project: Investigation of Industrial Furnaces and Heat-Exchange Technologies using Models  
 Venue: Instituto Superior Técnico  
 Date: 3 May 1993/2 May 1996  
 Funding: DGXII, PECO Programme 1992, European Commission  
 Contract No.: ERBCIPDCT925121  
 Consortium: IST(P), TUKI (HU), ICSTM (UK), Applikations-und Technikzentrum für Energieverfahrensumwelt- und Strömungstechnik (D), Faculté Polytechnique de Mons (B), Université Libre de Bruxelles (B), CRES (GR), Titan Cement Co. (GR), TNO (NL), INTERG (P), Association pour le Développement de l'Enseignement et de la Recherche en Système Appliqué (F), Institut National du Verre (B).  
 Position: Coordination and management of a project at European level. Research fellow.

102. Title of the project: Glass and Cement Industry Optimalization From Point Energy Consumption and Ecological Conditions  
 Venue: Instituto Superior Técnico  
 Date: 3 May 1993/2 May 1996  
 Funding: DGXII, PECO Programme 1992, European Commission  
 Contract No.: ERBCIPDCT925081  
 Consortium: IST (P), Technical University of Kosice (CS), ICSTM (UK), Applikations-und Technikzentrum für Energieverfahrensumwelt- und Strömungstechnik (D), Faculté Polytechnique de Mons (B), Université Libre de Bruxelles (B), CRES (GR), Titan Cement Co. (GR), TNO (NL), INTERG (P), Association pour le Développement de l'Enseignement et de la Recherche en Système Appliqué (F), Institut National du Verre (B).  
 Position: Coordination and management of a project at European level. Research fellow.

103. Title of the project: Optimização dos Processos de Combustão na Zona do Cinzeiro nas Caldeiras da Central Térmica de Setúbal  
 Venue: Instituto Superior Técnico  
 Date: April 1993/October 1993  
 Funding: EDP (P)  
 Consortium: IST (P), EDP (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

104. Title of the project: INFLECT - Improvement of Energy Efficiency in Glass - Melting Furnaces Cement Kilns and Baking Ovens  
 Acronym: INFLECT  
 Venue: Instituto Superior Técnico  
 Date: 1 March 1993/28 February 1996  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract No.: JOU2-CT92-0107  
 Consortium: IST (P), I.C.S.T.M. (UK), ATZ-EVUS (D), Faculté Polytechnique de Mons (B), CRES (GR), TNO - Nutrition and Food Research (NL), TNO - Institute of Environmental and Energy Technology (NL), INTERG (P), Institut National du Verre (B), ADERSA (F), Université Libre de Bruxelles (B), TÜKI (HU), Technical University of Kosike (CS)  
 Position: Coordination and management of the project at European level. Research fellow.

105. Title of the project: Coal Combustion in Advanced Burners for Minimal Emissions and Carbon Dioxide Reduction Technologies  
 Venue: Instituto Superior Técnico  
 Date: 1 January 1993/31 December 1995  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract No.: JOU2-CT92-0220  
 Consortium: NEI International Combustion (UK), ICSTM (UK), IST (P), LAMDA (GR), EDP (P).

Position: Co-ordinator of the project at IST. Research fellow.

106. Title of the project: Optical and Radiative Properties of Soot  
 Venue: Instituto Superior Técnico  
 Date: 1992/1995  
 Funding: AGARD-PEP  
 Contract No.: P-92/PEP  
 Consortium: IST (P), Aerospace Engineering Department, University of Michigan (USA)  
 Position: Co-ordinator of the project at IST. Research fellow.

107. Title of the project: Desenvolvimento de um Código de Cálculo de Escoamentos com Combustão  
 Venue: Instituto Superior Técnico  
 Date: 19 December 1992/18 December 1994  
 Funding: JNICT/CCI Defense (P)  
 Position: Co-ordinator of the project at IST.

108. Title of the project: Improvement and Updates of the COPPEF Code  
 Venue: Instituto Superior Técnico  
 Date: 19 December 1992/18 December 1994  
 Funding: Prins Maurits Laboratory - TNO (NL)  
 Contract No.: TNO: 90/734/PML  
 Position: Co-ordinator of the project at IST

109. Title of the project: Application of Glass Furnace Models to Design Optimum Glass Furnaces for Oxi-Fuel Firing  
 Venue: Instituto Superior Técnico  
 Date: Since 1 November 1992  
 Funding: PRAXAIR (Former Union Carbide) (USA)  
 Consortium: IST (P), PRAXAIR (USA)  
 Position: Research fellow.

110. Title of the project: Estudo das Operações de Sopragem numa Caldeira de Carvão Pulverizado  
 Venue: Instituto Superior Técnico  
 Date: 1 April 1992/30 June 1993  
 Funding: EDP (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

111. Title of the project: Collaboration Contract for the Development and Application of 3D VITRUM  
 Venue: Instituto Superior Técnico  
 Date: 25 February 1992/31 December 1993  
 Funding: ATZ-EVUS (D)  
 Consortium: IST (P), ATZ-EVUS (D) and several German glass industries  
 Position: Co-ordinator of the project at IST. Research fellow.

112. Title of the project: Contrat de Collaboration de Recherche pour le Developement de FUSIO  
 Venue: Instituto Superior Técnico  
 Date: 1 February 1992/1 February 1995  
 Funding: Saint-Gobain Recherche (F)  
 Contract No.: 8514/92  
 Consortium: IST (P), Saint-Gobain Recherche (F)  
 Position: Co-ordinator of the project at IST. Research fellow.

113. Title of the project: Improved Processing Capability of CW-Industrial CO<sub>2</sub> Lasers  
 Venue: Instituto Superior Técnico  
 Date: 1 February 1992/31 January 1994  
 Funding: DGXII, Programme BRITE/EURAM, European Commission  
 Contract No.: BREU-CT91-0516 (RZJE)  
 Consortium: Radius Engng (B), Fluent Europe Ltd (UK), Trumpf Lasertechnik GmbH (D), Space Technology Ireland Ltd (IR), Gebrüder Beeker GmbH Co (D), IST (P)  
 Position: Co-ordinator of the project at IST.

114. Title of the project: Estudo Experimental e Simulação Numérica de Chamas de Óleo e Carvão em Fornalha Cilíndrica  
 Venue: Instituto Superior Técnico  
 Date: 1 January 1992/31 December 1992  
 Funding: Portuguese-Spanish Joint Programmes  
 Contract No.: Programme E 36/92

Consortium: IST (P), University of Zaragoza (E)  
 Position: Co-ordinator of the project at IST.

115. Title of the project: Desenvolvimento de um Sistema de Queima Alternativo para Fusão de Vidro utilizando Oxigénio Puro e Gás Combustível  
 Venue: Instituto Superior Técnico  
 Date: 2 July 1991/2 October 1991  
 Funding: SOGÁS (Linde Group) (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

116. Title of the project: Forecasting Forest Spread in Mediterranean Ecosystems for Fire Prevention and Management  
 Venue: Instituto Superior Técnico  
 Date: 1 April 1991/31 March 1993  
 Funding: DGXII, Programme EPOCH, European Commission  
 Contract No.: EPOC-CT90-0020-CSMA  
 Consortium: Imperial College of Science and Technology (UK), Lamda Technical Ltd (GR), IST (P), CINAR (UK)  
 Position: Co-ordinator of the project at IST. Research fellow.

117. Title of the project: Desenvolvimento de Produtos Didáticos para as Disciplinas da Área de Transmissão de Calor  
 Venue: Instituto Superior Técnico  
 Date: 1 April 1991/31 March 1993  
 Funding: SITAF (P)  
 Position: Co-ordinator of the teaching modules.

118. Title of the project: Modelação e Simulação Numérica de Leito Fluidizado Circulante  
 Venue: Instituto Superior Técnico  
 Date: January 1991/December 1992  
 Funding: Portuguese-German Joint Programmes  
 Contract No.: Programme A11/91, A18/92, A29/93  
 Consortium: IST (P), IWBT - University of Braunschweig (D)  
 Position: Co-ordinator of the project at IST.

119. Title of the project: PROCIC - Process Computer for Computationally Intensive Control  
 Venue: Instituto Superior Técnico  
 Date: 1 October 1990/30 September 1993  
 Funding: DGXIII, Programme ESPRIT II, European Commission  
 Contract No.: 5497/CIM  
 Consortium: Delta T (D), MPE (UK), THOT Informatique (F), ADIST-IST (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

120. Title of the project: Energy Saving and Pollution Abatement in Glass-Making Furnaces, Cement Kilns and Baking Ovens  
 Venue: Instituto Superior Técnico  
 Date: 1 June 1990/31 October 1992  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract No.: Joue-CT90-0051  
 Consortium: IST (P), Institut National du Verre (B), Université Libre de Bruxelles (B), Faculté Polytechnique de Mons (B), University of Erlangen-Nuremberg (D), CRES (GR), ADERSA (F), TITAN Cements (GR), TNO-Cereals, Flour and Bread Institute (NL), TNO-Institute of Environmental and Energy Technology (NL), Imperial College of Science and Technology (UK), INTERG - Energy Institute (P), Metal Portuguesa (P)  
 Position: Coordination and management of the project at European Level. Research fellow.

121. Title of the project: Minimization of the Formation of Air Pollutants in a CAFBC (Circulating Atmospheric Fluidized Bed Combustor) by using European Fuels and Additives  
 Venue: Instituto Superior Técnico  
 Date: 1 May 1990/30 April 1993  
 Funding: DG XII, Programme JOULE, European Commission  
 Contract No.: JOUF-CT90-0030  
 Consortium: Technische Universität Braunschweig (D), National Technical University of Athens (GR), IST (P)

Position: Co-ordinator of the project at IST. Research fellow.

122. Title of the project: The Modelling of Wall Fired Pulverised Coal Burners for Emissions Control  
 Venue: Instituto Superior Técnico  
 Date: 1 February 1990/31 January 1993  
 Funding: DGXII, Programme JOULE, European Commission  
 Contract No.: JOUF-0023-C(EDB)  
 Consortium: NEI International Combustion (UK), Imperial College of Science and Technology (UK), IST (P), CRES (GR), EDP (P)

Position: Co-ordinator of the project at IST. Research fellow.

123. Title of the project: Combustão de Madeira em Leito Fluidizado  
 Venue: Instituto Superior Técnico  
 Date: 1 January 1990/31 December 1990  
 Funding: Portuguese-Spanish Joint Programmes  
 Contract No.: Programme E 45/90  
 Consortium: IST (P), ETSII - University of Valladolid - Prof. Gregorio Antolin (E)

Position: Co-ordinator of the project at IST.

124. Title of the project: Tratamento de Superfícies por Laser  
 Venue: CTAMFUTL - Centro de Termodinâmica Aplicada e Mecânica dos Fluidos da Universidade Técnica de Lisboa  
 Date: 1989/1992  
 Funding: INIC (P)

Position: Co-ordinator of the project at IST. Research fellow.

125. Title of the project: AIMBURN - Advanced Intelligent Multi-Sensor Systems for Control of Large Industrial Boilers and Furnaces  
 Venue: Instituto Superior Técnico  
 Date: 1989/1992  
 Funding: DGXIII, Programme ESPRIT II, European Commission  
 Contract No.: 2192  
 Consortium: ADIST-IST (P), Barbosa and Almeida Glass Factory (P), EDP (P), Mague (P), Servotrol (P), Unisoft (P), IDS (E), IGC (E), Trion (D), Imperial College of Science and Technology (UK)

Position: Co-ordinator at IST at the physical and mathematical modelling activities.

126. Title of the project: Modelação da Propagação de Incêndios em Edifícios  
 Venue: CTAMFUTL - Centro de Termodinâmica Aplicada e Mecânica dos Fluidos da Universidade Técnica de Lisboa  
 Date: 1989/1992  
 Funding: INIC (P)

Position: Co-ordinator of the project at IST. Research fellow.

127. Title of the project: Investigation of Laminar Flow Technology  
 Venue: Instituto Superior Técnico  
 Date: December 1989/November 1991  
 Funding: DGXII, Programme BRITE/EURAM, European Commission  
 Contract No.: AERO 1004  
 Consortium: Aerospatiale (F), Alenia (I), Avion Marcel Dassault (F), CASA (E), CIRA (I), Delft University (NL), Deutsch Airbus (D), DLR (D), Dornier (D), Fokker (NL), FFA (S), University of Galway (UK), INTA (E), ONERA (F), SAAB (S), Zaragoza University (E), IST (P)

Position: Co-ordinator of the project at IST. Research fellow.

128. Title of the project: Heat Transfer and Combustion in Gas Turbine and Rockets  
 Venue: Instituto Superior Técnico  
 Date: September 1989/September 1992  
 Funding: AGARD-PEP  
 Contract No.: P-75/PEP  
 Consortium: IST (P), Delft University of Technology (NL), Prins Maurits Laboratory-TNO (NL), Eindhoven University of Technology (NL)

Position: Co-ordinator of the project at IST. Research fellow.

129. Title of the project: Modelação de Propagação de Incêndios em Edifícios  
 Venue: Instituto Superior Técnico  
 Date: 1989/1991

Funding: Laboratório Nacional de Engenharia Civil (P)  
Position: Co-ordinator of the project at IST. Research fellow.

130. Title of the project: Técnicas de Simulação Aplicáveis à Optimização de Instalações Produtoras de Energia  
Venue: CTAMFUTL - Centro de Termodinâmica Aplicada e Mecânica dos Fluidos da Universidade Técnica de Lisboa  
Date: 1988/1992  
Funding: INIC (P)  
Position: Co-ordinator of the project at IST. Research fellow.

131. Title of the project: Modelisation of Laser Hardfacing of Steels with Carbide Powder Injection  
Venue: Instituto Superior Técnico  
Date: 1 November 1987/30 October 1988  
Funding: DGXII, Programme EURAM, European Commission  
Contract No.: MA1E/0015C  
Consortium: École Centrale de Paris (F), IST (P)  
Position: Co-ordinator at IST of the area of Heat Transfer Modelling of Surface Treatment by Laser.

132. Title of the project: NO<sub>x</sub> Formation in an Industrial Glass Furnace  
Venue: Instituto Superior Técnico  
Date: 1987  
Funding: Pilkington Brothers (UK)  
Consortium: IST (P), Imperial College of Science and Technology (UK)  
Position: Co-ordinator of the project at IST. Research fellow.

133. Title of the project: Improved Design of Glass Smelting Kilns  
Venue: Instituto Superior Técnico  
Date: 1987/1989  
Funding: DGXII, Non-Nuclear Energy Program – European Commission  
Contract No.: EN3E-0153-P  
Consortium: IST (P), LNETI (P), Metal Portuguesa (P), Imperial College of Science and Technology (UK), University of Erlangen-Nuremberg (D).  
Position: Co-ordinator at IST of the modelling activities. Research fellow.

134. Title of the project: Câmaras de Combustão de Turbinas a Gás  
Venue: CTAMFUTL - Centro de Termodinâmica Aplicada e Mecânica dos Fluidos da Universidade Técnica de Lisboa  
Date: 1986/1988  
Funding: INIC (P)  
Position: Co-ordinator of the project at IST. Research fellow.

135. Title of the project: Fluidised Bed Combustion of Coals and different Types of Wastes  
Venue: Instituto Superior Técnico  
Date: 1986/1989  
Funding: DGXII, Non-Nuclear Energy Program, European Commission  
Contract No.: EN3F-0013-C(T.T.)  
Consortium: IST (P), LNETI (P), Mague (P), University of Sheffield (UK).  
Position: Co-ordinator at IST of the modelling activities. Research fellow.

136. Title of the project: Investigação Experimental e Teórica em Escoamento de Leito Fluidizado  
Venue: Instituto Superior Técnico  
Date: October 1986 /September 1988  
Funding: Portuguese-German Joint Programmes  
Consortium: IST (P), University of Erlangen-Nuremberg (D)  
Position: Co-ordinator of the activities at IST. Research fellow.

137. Title of the project: Escoamento em Leito Fluidizado  
Venue: CTAMFUTL - Centro de Termodinâmica Aplicada e Mecânica dos Fluidos da Universidade Técnica de Lisboa  
Date: January 1986/1992  
Funding: INIC (P)  
Position: Co-ordinator of the project at IST. Research fellow.

138. Title of the project: Investigação em Escoamentos a Duas Fases com Combustão  
Venue: Instituto Superior Técnico

Date: 1985/1987  
 Funding: Kernforschungszentrum, Karlsruhe (D).  
 Consortium: IST (P), University of Erlangen - Nuremberg (D)  
 Position: Research fellow.

139. Title of the project: Simulação Numérica de Fornalhas e Verificação Experimental  
 Venue: CTAMFUTL - Centro de Termodinâmica Aplicada e Mecânica dos Fluidos da Universidade Técnica de Lisboa  
 Date: January 1985/1992  
 Funding: INIC (P)  
 Position: Co-ordinator of the project at IST. Research fellow in the area of numerical simulation.

140. Title of the project: Forno de Vidro Cerâmico  
 Venue: Instituto Superior Técnico  
 Date: 1984/1986  
 Funding: Ministry of Industry and Energy (P)  
 Contract No.: CDI-Metal-IST-LNETI 002/84  
 Consortium: IST (P), Metal Portuguesa (P) and LNETI (P)  
 Position: Co-ordinator of the project at IST. Research fellow in the area of physical and mathematical modelling of industrial furnaces.

141. Title of the project: Estudo de um Forno de Vidro Cerâmico  
 Venue: Instituto Superior Técnico  
 Date: 1984/1985  
 Funding: Metal Portuguesa (P)  
 Position: Co-ordinator of the project at IST. Research fellow.

142. Title of the project: Computer Simulation of a Glass Furnace  
 Venue: Imperial College of Science and Technology  
 Date: 1980/1983  
 Funding: Societé Saint Gobain (F)  
 Position: Research fellow. Ph.D. student.

143. Title of the project: The Study of Combustion of Heavy Fuel Oil and Natural Gas in the Glass Industry  
 Venue: Imperial College of Science and Technology  
 Date: 1979/1980  
 Funding: Pilkington Brothers (UK)  
 Position: Research fellow. Ph.D. student.

## COORDINATION AND PARTICIPATION IN STRUCTURAL PROJECTS AND PROGRAMMES

- CIENCIA Programme - Measure M - 9/M/90 - LASEF - Laboratory of Advanced Sensors in Fluid Flow.
- PEDIP Programme - Infraestruturas Tecnológicas - "Centro de Transferência em Tecnologias de Recursos Ambientais".

## PUBLICATIONS

### a) Books

*"Sustainable Assessment Method for Energy Systems - Indicators, Criteria and Decision Making Procedure"* – N. H. Afgan and M. G. Carvalho, Kluwer Academic Publishers, USA (180 pag.), 2000.

### b) Chapters in Books

1. Afgan, N. and Carvalho, M.G. – *"Sustainability Assessment of Energy Systems – An Overview of Current Status"*. Chapter in the book *"Geothermal Energy Resources for Developing Countries"* – Ed. Chandrasekharam, D. and Bundschuh, J. (A. A. Balkema Publishers), 2002, pp. 1-35.

2. "Radiative Heat Transfer" Section in "International Encyclopedia of Heat and Mass Transfer" (CRC Press), 1996, pp. 913-926.

### c) Books and Special Issues of Journals (Edition)

1. "2004 New and Renewable Energy Technologies for Sustainable Development" – Ed. Maria da Graca Carvalho and Naim Hamdia Afgan, World Scientific, Singapore (369 pages), 2007.
2. "New and and Renewable Energy Technologies for Sustainable Development" - Ed. N. H. Afgan and M. G. Carvalho, A. A. Balkema Publishers, The Netherlands, (481 pages), 2004.
3. "New and Renewable Technologies for Sustainable Development" - Ed. N. H. Afgan and M. G. Carvalho, Kluwer Academic Publishers, U.S.A., (710 pages), 2002.
4. "Combustion Technologies for a Clean Environment", Vol. 3 series "Energy, Combustion and the Environment" - Ed. Carvalho, M.G., Fiveland, W.A. and Lockwood, F.C., Taylor & Francis USA, (1547 pages) 2002.
5. "Combustion Technologies for a Clean Environment", Vol. 2, Parts A and B of the series "Energy, Combustion and the Environment" - Ed. Carvalho, M.G., Fiveland, W.A., Lockwood, F.C. and Papadopoulos, C., Gordon and Breach Science Publishers, USA (1152 Pages), 1999.
6. "Advanced Control for Industrial Glass Melters" - Ed. TNO-TPD and IrRadiare, 1997.
7. Special Issue of "Combustion Science and Technology" - Ed. Carvalho, M.G., Fiveland, W.A., Lockwood, F.C. and Papadopoulos, C., Gordon and Breach Science Publishers, The Netherlands, Vol. 121, No. 1-6, pp. 1-349, December 1996.
8. "New Developments in Heat Exchangers" - Ed. Afgan, N., Carvalho, M.G., Bar-Cohen, A., Butterworth, D. and Roetzel, W., Gordon and Breach Science Publishers, The Netherlands, (681 pages), 1996.
9. Special Issue of "Combustion Science and Technology" - Ed. Carvalho, M.G., Fiveland, W.A., Lockwood, F.C. and Papadopoulos, C., Gordon and Breach Science Publishers, USA, Vol. 108, No. 4-6, pp. 205-402, October 1995.
10. Special Issue of "International Journal of Heat and Technology" - Ed. M. Chiadò Rana and M.G. Carvalho, Edizioni ETS, Pisa, Italy, Vol. 13, No. 2, pp. 1-168, 1995.
11. Special Issue of "Journal of Enhanced Heat Transfer" - Ed. Afgan, N., Carvalho, M.G., Gordon and Breach Science Publishers, Yverdon, Switzerland, Vol. 2, No. 1-2, pp. 1-175, 1995.
12. "Combustion Technologies for a Clean Environment", Vol. 1 series "Energy, Combustion and the Environment" - Ed. Carvalho, M.G., Fiveland, W.A., Lockwood, F.C. and Papadopoulos, C., Gordon and Breach Science Publishers, USA (838 pages), 1995.
13. Special Issue of "Combustion Science and Technology" - Ed. Carvalho, M.G., Fiveland, W.A., Lockwood, F.C. and Papadopoulos, C., Gordon and Breach Science Publishers, USA, Vol. 93, No. 1-6, pp. 1-386, September-October 1993.
14. "Heat Transfer in Radiating and Combusting Systems" - Ed. Carvalho, M.G., Lockwood, F.C. and Taine, J., Springer Verlag, Berlin, Heidelberg (619 pages), 1991.

### d) International Journals

1. Chen, F., Duic, N., Alves, L.M. and Carvalho, M.G. – "Renewislands – Renewable Energy Solutions for Islands". *Renewable and Sustainable Energy Reviews*, Vol. 11, No. 8, October 2007, pp. 1888-1902.
2. Lund, H., Duic, N., Krajacic, G. and Carvalho, M.G. – "Two Energy System Analysis Models: A Comparison of Methodologies and Results". *Energy*, Vol. 32, No. 6, June 2007, pp. 948-954.
3. Chen, F., Fernandes, T.R.C., Yetano Roche, M. and Carvalho, M.G. – "Investigation of Challenges to the Utilization of Fuel Cell Buses in the E.U. vs Transition Economies". *Renewable and Sustainable Energy Reviews*, Vol. 11, No. 2, February 2007, pp. 357-364.
4. Afgan, N.A., Pilavachi, P.A. and Carvalho, M.G. – "Multi-Criteria Evaluation of Natural Gas Resources". *Energy Policy*, Vol. 35, No. 1, January 2007, pp. 704-713.
5. Teixeira, M.A., Murray, M.L. and Carvalho, M.G. – "Assessment of Land Use and Land Use Change and Forestry (LULUCF) as CDM Projects in Brazil". *Ecological Economics*, Vol. 60, No. 1, November 2006, pp. 260-270.
6. Liposcak, M., Afgan, N.H., Duic, N. and Carvalho, M.G. – "Sustainability Assessment of Cogeneration Sector Development in Croatia". Presented at the 2<sup>nd</sup> Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 15-20 June 2003. Published in "Sustainable Development of Energy, Water and Environment Systems", Proceedings,

edited by Naim H. Afgan, Zeljko Bogdan, Neven Duić and Zvominir Guzović, Volume II, pp. 123-132. *Energy*, Vol. 31, No. 13, October 2006, pp. 2276-2284.

7. Afgan, N., Carvalho, M.G., Pilavachi, P.A., Tourlidakis, A., Olkhonski, G.G. and Martins, N. – “An Expert System Concept for Diagnosis and Monitoring of Gas Turbine Combustion Chambers”. *Applied Thermal Engineering*, Vol. 26, No. 7, May 2006, pp. 766-771.
8. Afgan, N. and Carvalho, M.G. – “Sustainability and Safety: The Complex System Properties”. *IPSI (Internet, Processing, Systems and Interdisciplinary) Journal*, Vol. 1, No. 2, July 2005, pp.79-85.
9. Afgan, N., Carvalho, M.G. and Hovanov, N. – “Modelling of Energy System Sustainability Index”. *Thermal Science Journal*, Vol. 9, No. 2, 2005, pp-3-16.
10. Ramos, J.E., Pitarma, R.A., Ferreira, M.E. and Carvalho, M.G. – “Indoor Environment Quality: A New Challenge for Environmental Education”. *International Journal of Environment and Sustainable Development*, Vol. 4, No. 2, 2005, pp. 154-165.
11. Fernandes, T.R.C., Chen, F. and Carvalho, M.G. – “HySociety” in Support of European Hydrogen Projects and EC Policy”, *International Journal of Hydrogen Energy*, Vol. 30, No. 3, 2005, pp.239-245.
12. Afgan, N. and Carvalho, M.G. – “Sustainability Assessment of Hydrogen Energy Systems”, *International Journal of Hydrogen Energy*, Vol. 29, No. 13, 2004, pp.1327-1342.
13. Afgan, N., Carvalho, M.G. and Hovanov, N.V. – “Multi-Criteria Sustainability Assessment of Clean Air Technologies”. *CLEAN AIR – International Journal on Energy for a Clean Environment*, Vol. 5, No. 2, 2004, pp 107-124
14. Pitarma, R. A., Ramos, J. E., Ferreira, M. E. and Carvalho, M.G. – “Computational Fluid Dynamics- An Advanced Active Tool in Environmental Management and Education”. Presented at the First World Environmental Education Congress, Espinho, Portugal, 20-24 May 2003. *Management of Environmental Quality, an International Journal*, Vol. 15, No. 2, 2004, pp. 102-110.
15. Duić, N., Lerer, M. and Carvalho, M.G. – “Increasing the Supply of Renewable Energy Sources in Island Energy Systems”. *International Journal of Sustainable Energy*, Vol. 23, No. 4, December 2003, pp. 177-186.
16. Afgan, N., Carvalho M.G., Prstić, S. and Bar-Cohen, A. – “Sustainability Assessment of Aluminum Heat Sink Design”. *International Journal on Heat Transfer Engineering*, Vol. 24, No. 4, July/August 2003, pp. 39-48.
17. Carvalho M.G., Kayakol, N. and Nogueira, M. – “Computational Intelligence Technologies in the Design of Hierarchical Control Architecture of Glass Melting Furnaces”. Presented at XIX International Congress on Glass (IGC XIX), Edinburgh, United Kingdom, 1-6 July 2001. *Glass Technology*, Vol. 44, No. 1, 2003, pp. 25-29.
18. Duić, N., Alves, L.M., Chen, F. Z. and Carvalho, M. G. – “Potential of Kyoto Protocol Clean Development Mechanism in Transfer of Clean Energy Technologies to Small Island Developing States: Case Study of Cape Verde”. *Renewable and Sustainable Energy Reviews*, No. 7, 2003, pp. 83-98.
19. Afgan, N., Carvalho M.G. and Hovanov, N.- “Multi-criteria Sustainability Assessment of Clean Air Technologies”. *Transactions of FAMENA*, Vol. XXVI, No. 1, 2002, pp. 1-14.
20. Afgan, N. and Carvalho M.G., - “Multi-criteria Assessment of New and Renewable Energy Power Plants”. *International Journal on Energy*, Vol. 27, 2002, pp. 739-755.
21. Lopes, J., Semião, V. and Carvalho, M.G. - “On the Effect of the Local Turbulence Scales on the Mixing Rate of Diffusion Flames: Assessment of Two Different Combustion Models”, *International Journal of Energy Research*, Vol. 26, No. 10, August 2002, pp. 893-920.
22. Duić, N., Alves, L.M. and Carvalho, M.G. – “Potential of Kyoto Protocol in Transfer of Energy Technologies to Insular Countries”. *Transactions of Famena*, Vol. 25, No. 2, 2001, pp. 27-38.
23. Brasil, A., Farias, T.L., Carvalho, M.G. and Köylü, Ü. Ö. - "Numerical Characterization of the Morphology of Aggregated Particles". *Journal of Aerosol Science*, Vol. 32, 2001, pp. 489-508.
24. Ayres, D., Caldas, M., Semião, V. and Carvalho, M.G. - "Prediction of the Droplet Size and Velocity Joint Distribution for Sprays". *Fuel*, Vol. 80, No. 3, February 2001, pp. 383-394.
25. Magrinho, A., Semião, V. and Carvalho, M.G. - "Energy and Environmental Analysis of an Entire Coke Production Plant using ECLIPSE". *International Journal on Energy Research*, Vol. 25, No. 2, February 2001, pp. 93-106.
26. Brasil, A. M., Farias, T.L. and Carvalho, M.G. - "Evaluation of the Fractal Properties of Cluster-Cluster Aggregates". *Aerosol Science and Technology*, No. 33, 2000, pp.440-454.
27. Martins, N., Afgan, N., Carvalho, M.G. and Nogueira, M. – “Heat Flux as a Parameter for Diagnostic and Control of Industrial Thermal Systems”. *Heat & Technology*, Vol. 18, No. 2, 2000, pp.115-.

28. Xu, M., Azevedo, J. L. T. and Carvalho, M. G. - "Modelling of the Combustion Process and NO<sub>x</sub> Emission in a Utility Boiler". *Fuel*, Vol. 79, No. 13, October 2000, pp. 1611-1619.
29. Xu, M., He, X., Azevedo, J. L. T. and Carvalho, M.G. - "Flexibly Using Results of CFD and Simplified Heat Transfer Model for Pulverized Coal Fired Boilers". *International Journal of Energy Research*, Vol. 24, No. 13, October 2000, pp. 1161-1169.
30. Martins, N., Carvalho, M.G., Afgan, N. and Leontiev, A. I. - "A Radiation and Convection Fluxmeter for High Temperature Applications". *Experimental Thermal and Fluid Science*, Vol. 22, Nos. 3-4, October 2000, pp 165-173.
31. Afgan, N., Carvalho, M.G. and Hovanov, N. - "Energy System Assessment with Sustainability Indicators". *Energy Policy*, Vol. 28, 2000, pp. 603-612
32. Afgan, N., Carvalho, M.G. and Cumo, M. - "The Concept of Sustainable Energy Development". *Thermal Engineering*, Vol. 47, No. 3, March 2000, pp. 266-274
33. Alves, L.M., Costa, A.L. and Carvalho, M.G. - "Analysis of Potential for Market Penetration of Renewable Energy Technologies in Peripheral Islands". World Renewable Energy Congress - V, Florence, Italy, 20-25 September 1998. *Renewable Energy*, No. 19, 2000, pp. 311-317.
34. Brasil, A.M., Farias, T.L. and Carvalho, M.G. - "A Recipe for Image Characterization of Fractal-like Aggregates". *Journal of Aerosol Sciences*, Vol. 30, No. 10, 1999, pp. 1379-1389.
35. Afgan, N., Darwish, M. and Carvalho, M.G. - "Sustainability Assessment of Desalination Plants for Water Production". Presented at the European Conference on Desalination and the Environment, Las Palmas, Gran Canaria, Spain, 9-12 November 1999. *Desalination*, No. 124, 1999, pp. 19-31.
36. Afgan, N., He, X., Carvalho, M.G. and Azevedo, J.L.T. - "Knowledge Based System for Fouling Assessment of Power Plant Boiler". *Heat and Technology*, Vol. 17, No. 1, 1999, pp. 63-70.
37. Ruão, M., Costa, M. and Carvalho, M.G. - "A NO<sub>x</sub> Diagnostic System Based on a Spectral Ultraviolet/Visible Imaging Device". *Fuel*, Vol. 78, 1999, pp. 1283-1292.
38. Novo, P., Coelho, P.J. and Carvalho, M.G. - "Parallelization of the Discrete Transfer Method". *Numerical Heat Transfer. Part B: Fundamentals*, Vol. 35, No. 2, 1999, pp. 137-161.
39. Coelho, P., Novo, P.J. and Carvalho, M.G. - "Modelling of a Utility Boiler using Parallel Computing". Presented at the Fourth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 7-10 July 1997. *The Journal of Supercomputing*, No. 13, March/April 1999, pp. 211-232
40. Martins, N., Carvalho, M.G., Afgan, N. and Leontiev, A.I. - "Design and Sensitivity Analysis of a New Gauge for Radiation Heat Flux Assessment". *Heat & Technology*, Vol. 16, No. 2, 1998, pp. 77-84.
41. Azevedo, J.L.T., Costa, M. and Carvalho, M.G. - "The Centre of Heat and Mass Transfer in Radiating and Combusting Systems". *Progress in Energy and Combustion Science*, Vol. 24, No. 5, 1998, pp. 419-427.
42. Afgan, N., Carvalho, M.G. and Cumo, M. - "Energia per uno Sviluppo Sostenibile". *La Termotecnica*, Year II, No. 7, September 1998, pp. 73-79 (1st part), No. 8, October 1998, pp. 75-78 (2nd part), in Italian.
43. Afgan, N., Carvalho, M.G. and Cumo, M. - "Sustainable Energy Development". *Journal of Clean Coal Combustion and Power Generation Technology*. No. 2, September 1998, pp. 47-55 (1st part), No. 3, December 1998, pp. 47-55 (2nd part), in Chinese.
44. Afgan, N.H., Al Gobaisi, D., Carvalho, M.G. and Cumo, M. - "Sustainable Energy Development". *Renewable and Sustainable Energy Reviews*, No. 2, 1998, pp. 235-286.
45. Meunier, Ph., Costa, M. and Carvalho, M.G. - "The Formation and Destruction of NO in Turbulent Propane Diffusion Flames". *Fuel*, Vol. 77, No. 15, 1998, pp. 1705-1714.
46. Farias, T.L., Carvalho, M.G. and Köylü, Ü. Ö - "Radiative Heat Transfer in Soot-containing Combustion Systems with Aggregation". *International Journal of Heat and Mass Transfer*, Vol. 41, No. 17, 1998, pp. 2581-2587.
47. Afgan, N., Al Gobaisi, D., Carvalho, M.G. and Cumo, M. - "Sustainable Energy Development". *Nuclearna Tehnologija*, Journal of the Yugoslav Nuclear Society, Vol. XIII, No. 1, May 1998, pp. 12-27.
48. Afgan, N. and Carvalho, M.G. - "A Confluence-based Expert System for the Detection of Heat Exchanger Fouling". *Heat Transfer Engineering*, Vol. 19, No. 2, April-June 1998, pp. 28-35.
49. Martins, N., Carvalho, M.G., Afgan, N.H. and Leontiev, A.I. - "Experimental Verification and Calibration of the Blow-off Heat Flux Sensor". *Applied Thermal Engineering*, Vol. 16, No. 6, March 1998, pp. 481-489.

50. Coelho, P.J., Duic, N., Lemos, C. and Carvalho, M.G. - "Modelling of a Solid Fuel Combustion Chamber of a Ramjet Using a Multi-block Domain Decomposition Technique". *Aerospace Science and Technology*, No. 2, 1998, pp. 107-119.
51. Carvalho, M.G. and Farias, T. - "Modelling of Heat Transfer in Radiating and Combusting Systems". *Trans. IChemE*, Vol. 76, Part A, February 1998, pp. 175-184.
52. Meunier, Ph., Costa, M. and Carvalho, M.G. - "On NO<sub>x</sub> Emissions from Turbulent Propane Diffusion Flames". *Combustion and Flame*, Vol. 113, Nos. 1/2, January 1998, pp. 221-230.
53. Afgan, N.H., Coelho, P.J. and Carvalho, M.G. - "Boiler Tube Leakage Detection Expert System". *Applied Thermal Engineering*, Vol. 18, No. 5, 1998, pp. 317-326.
54. Coelho, P.J., Gonçalves, J.M., Carvalho, M.G. and Trivic, D.N. - "Modelling of Radiative Heat Transfer in Enclosures with Obstacles". *International Journal of Heat and Mass Transfer*, Vol. 41, Nos. 4-5, 1998, pp. 745-756.
55. Costa, M., Azevedo, J.L.T., and Carvalho, M.G. - "Combustion Characteristics of a Front-wall-fired Pulverised-coal 300 MWe Utility Boiler". *Combustion Science and Technology*, Vol. 129, Nos. 1-6, 1997, pp. 277-293.
56. Yuan, J., Carvalho, M.G. and Semião, V. - "Modelling and Validation of the Formation and Oxidation of Cenospheres in a Confined Spray Flame". *International Journal of Energy Research*, Vol. 21, 1997, pp. 1331-1344.
57. Carvalho, M.G. and Nogueira, M. - "Improvement of Energy Efficiency in Glass-Melting Furnaces, Cement Kilns and Baking Ovens". Invited Lecture in "Energy Efficiency in Industry — A European Seminar", Palais des Congrès, Brussels, Belgium, 10-12 January 1995. *Applied Thermal Engineering*, Vol. 17, Nos. 8-10, 1997, pp. 921-933.
58. Isdale, J.D., Jenkins, A.M., Semião, V., Carvalho, M.G. and Welbourne, M.C. - "Fouling of Combustion Chambers and High Temperature Filters". *Applied Thermal Engineering*, Vol. 17, Nos. 8-10, 1997, pp. 763-775.
59. Baltasar, J., Carvalho, M.G., Coelho, P. and Costa, M. - "Flue Gas Recirculation in a Gas-Fired Laboratory Furnace: Measurements and Modelling". Presented at the 3rd International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 3-6 July 1995. *Fuel*, Vol. 76, No. 10, 1997, pp. 919-929.
60. Yuan, J., Semião, V. and Carvalho, M.G. - "Predictions of Particulate Formation, Oxidation and Distribution in a Three-dimensional Oil-fired Furnace". *Journal of the Institute of Energy*, Vol. 70, No. 483, June 1997, pp. 57-70.
61. Azevedo, J.L.T., Coelho, L.M.R. and Carvalho, M.G. - "Numerical Modelling of In-furnace NO<sub>x</sub> Reduction Technologies for Pulverised Coal Combustion". *Journal of Theoretical and Applied Mechanics*, Year XXVII, No. 1, 1997, pp. 77-88.
62. Semião, V. and Carvalho, M.G. - "LIMPO: An Improved Version of the PISO Algorithm for Turbulent Swirling Flows". *Engineering Computations-International Journal for Computer-Aided Engineering and Software*, Vol. 14, Nos. 2 and 3, 1997, pp. 325-341.
63. Coelho, P.J. and Carvalho, M.G. - "A Conservative Formulation of the Discrete Transfer Method". *Journal of Heat Transfer*, Vol. 119, No. 1, February 1997, pp. 118-128.
64. Costa, M., Ruão, M. and Carvalho, M.G. - "On the Influence of Flue-Gas Recirculation on Pollutant Emissions from a Small-Scale Laboratory Furnace". Presented at the 14th International Symposium on Combustion Processes, Czestochowa, Poland, 26-29 September 1995. *Archivum Combustionis*, Vol. 16, Nos. 1-2, 1996, pp. 77-86.
65. Farias, T.L., Köylü, Ü.Ö. and Carvalho, M.G. - "Range of Validity of the Rayleigh-Debye-Gans Theory for Optics of Fractal Aggregates". *Applied Optics*, Vol. 35, No. 33, November 1996, pp. 6560-6567.
66. Coimbra, C.F.M., Coelho, P.J., Queiroz, M. and Carvalho, M.G. - "The Comparison of Two Comprehensive Combustion Codes to Simulate Large-Scale, Oil-Fired Boilers". Presented at the 3rd International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 3-6 July 1995. *Combustion Science and Technology*, Vol. 120, No. 1-6, 1996, pp. 55-81.
67. Semião, V., Andrade, P. and Carvalho, M.G. - "Spray Characterization - Numerical Prediction of Sauter Mean Diameter and Droplet Size Distribution". *Fuel*, Vol. 75, No. 15, 1996, pp. 1707-1714.
68. Coelho, P.J. and Carvalho, M.G. - "Evaluation of a Three Dimensional Mathematical Model of a Power Station Boiler". *J. Engineering for Gas Turbines and Power*, Vol. 118, No. 4, October 1996, pp. 887-895.
69. Carvalho, M.G., Xeira, A.P. and Nogueira, M. - "Model-based Operation Optimization of Glass Melting Furnaces". *International Glass Journal*, No. 89, July/September 1996, pp. 31-37.

70. Afgan, N.H. and Carvalho, M.G. - "An Expert System for Controlling Processes in a Power-Station Boiler Furnace". *Thermal Engineering*, Vol. 43, No. 6, June 1996, pp. 514-523. Paper published in English and Russian.
71. Afgan, N.H., Carvalho, M.G. and Coelho, P.J. - "Concept of Expert System for Boiler Fouling Assessment". *Applied Thermal Engineering*, Vol. 16, No. 10, 1996, pp. 835-844.
72. Farias, T.L., Köylü, Ü.Ö. and Carvalho, M.G. - "Effects of Polydispersity of Aggregates and Primary Particles on Radiative Properties of Simulated Soot". *Journal of Quantitative Spectroscopy and Radiative Transfer*, Vol. 55, No. 3, 1996, pp. 357-371.
73. Costa, M., Mourão, M., Baltasar, J. and Carvalho, M.G. - "Combustion Measurements in an Industrial Glass-Melting Furnace". *Journal of the Institute of Energy*, Vol. 69, No. 479, June 1996, pp. 80-86.
74. Afgan, N.H. and Carvalho, M.G. - "Knowledge-based Expert System for Fouling Assessment of Industrial Heat Exchangers". *Applied Thermal Engineering*, Vol. 16, No. 3, March 1996, pp. 203-208.
75. Martins, N., Carvalho, M.G., Afgan, N.H. and Leontiev, A.I. - "A New Method for Hemispherical Radiation Heat Flux Measurement". Presented at the 37th Eurotherm Seminar, Heat Transfer in Radiating and Combusting Systems-2, Saluggia, Italy, 5-7 October 1994. *International Journal of Heat and Technology*, Vol. 13, No. 2, 1995, pp. 59-72.
76. Farias, T.L., Carvalho, M.G., Köylü, Ü.Ö. and Faeth, G.M. - "Light Scattering from Soot Aggregates with Radially Inhomogeneous Primary Particles". *International Journal of Heat and Technology*, Vol. 13, No. 2, 1995, pp. 27-42.
77. Carvalho, M.G., Nogueira, M. and Silva, P. - "Regenerative Cycle Optimisation via Physically-Based Dynamic Modelling". *GLASS*, Vol. 72, No. 12, December 1995, pp. 500-502.
78. Coelho, P.J. and Carvalho, M.G. - "Modeling of Soot Formation and Oxidation in Turbulent Diffusion Flames". *Journal of Thermophysics and Heat Transfer*, Vol. 9, No. 4, Oct.-Dec. 1995, pp. 644-652.
79. Coelho, P.J. and Carvalho, M.G. - "Mathematical Modelling of NO Formation in a Power Station Boiler". Presented at the Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993.
80. Martins, N., Carvalho, M.G., Afgan, N.H. and Leontiev, A.I. - "A New Instrument for Radiation Heat Flux Measurement — Analysis and Parameter Selection". *Heat Recovery Systems & CHP*, Vol. 15, No. 8, 1995, pp. 787-796.
81. Carvalho, M.G., Nogueira, M. and Jian, W. - "Assessment of Numerical Simulation of Industrial Glass Melter". *Verre*, Vol. 1, No. 5, September - October 1995, pp. 9-13.
82. Coelho, P.J. and Carvalho, M.G. - "Evaluation of a Three-Dimensional Model for the Prediction of Heat Transfer in Power Station Boilers". *International Journal of Energy Research*, Vol. 19, No. 7, September 1995, pp. 579-592.
83. Köylü, Ü.Ö., Faeth, G.M., Farias, T.L. and Carvalho, M.G. - "Fractal and Projected Structure Properties of Soot Aggregates". *Combustion and Flame*, Vol. 100, No. 4, March 1995, pp. 621-633.
84. Farias, T., Carvalho, M.G., Köylü, Ü.Ö. and Faeth, G.M. - "Computational Evaluation of an Approximate Rayleigh-Debye-Gans/Fractal-Aggregate Theory for the Absorption and Scattering Properties of Soot". Presented at the 6th AIAA/ASME Thermophysics and Heat Transfer Conference, Colorado Springs, CO, USA, 20-23 June 1994. *Radiative Heat Transfer: Current Research*, HTD-276, pp. 149-160. *ASME - Journal of Heat Transfer*, Vol. 117, No.1, February 1995, pp. 152-159.
85. Pereira, J.C.F., Coelho, P.J., Rocha, J.M.P. and Carvalho, M.G. - "Numerical Prediction of Flame Images in the Visible Spectrum Range". *JSME International Journal*, Series B, Vol. 37, No. 3, 1994, pp. 659-667.
86. Coimbra, C.F.M., Azevedo, J.L.T. and Carvalho, M.G. - "3-D Numerical Model for Predicting NO<sub>x</sub> Emissions from an Industrial Pulverized Coal Combustor". Presented at Coal Utilization and the Environment, Orlando, Florida, USA, 17-20 May 1993. *Fuel*, Vol. 73, No. 7, 1994, pp. 1128-1134.
87. Carvalho, M.G. and Nogueira, M. - "Modelling of Glass Melting Industrial Process". Invited lecture in EUROMAT 93 - The 3rd European Conference on Advanced Materials and Processes, P.K.L. 20, Paris, France, 8-10 June, 1993. *Journal de Physique IV*, Colloque C7, Vol. 3, November 1993, pp. 1357-1366.
88. Carvalho, M.G., Farias, T. and Fontes, P. - "Multidimensional Modelling of Radiative Heat Transfer in Scattering Media". *Transactions of the ASME Journal of Heat Transfer*, Vol. 115, May 1993, pp. 486-489.
89. Azevedo, J.L.T., Carvalho, M.G., Coelho, P.J., Coimbra, C.F.M. and Nogueira, M. - "Modelling of Combustion and NO<sub>x</sub> Emissions in Industrial Equipment". Invited Lecture presented at the 4th International Seminar on Flame Structure, Novosibirsk, Russia, 18-22, August 1992. *Pure and Applied Chemistry*, Vol. 65, No. 2, 1993, pp. 345-354.

90. Barreiros, A., Carvalho, M.G., Costa, M. and Lockwood, F.C. - "Prediction of the Near Burner Region and Measurements of NO<sub>x</sub> and Particulate Emissions in Heavy Fuel Oil Spray Flames". *Combustion and Flame*, Vol. 92, No. 3, 1993, pp. 231-240.
91. Coelho, P.J. and Carvalho, M.G. - "Application of a Domain Decomposition Technique to the Mathematical Modelling of a Utility Boiler". *International Journal for Numerical Methods in Engineering*, Vol. 36, No. 20, 1993, pp. 3401-3419.
92. Saraiva, P., Azevedo, J.L.T. and Carvalho, M.G. - "Mathematical Simulation of a Circulating Fluidised Bed Combustor". Presented at the 1st International Conference on Combustion Technologies for a Clean Environment, Vilamoura, Portugal, 3-6 September 1991. *Combustion Technologies for a Clean Environment* (edited by M.G. Carvalho, W.A. Fiveland, F.C. Lockwood and C. Papadopoulos), Volume 1 of series "Energy, Combustion and the Environment", Gordon and Breach, pp. 545-565, 1995. *Combustion Science and Technology*, Vol. 93, No. 1-6, 1993, pp. 223-243.
93. Carvalho, M.G., Semião, V.S. and Coelho, P.J. - "Modelling and Optimization of the NO Formation in an Industrial Glass Furnace". *Transactions of ASME - Journal of Engineering for Industry*, Vol. 114, November 1992, pp. 514-523.
94. Carvalho, M.G., and Nogueira, M. - "Dedicated Modelling as Tool for Novel Solutions to Improve Energy Efficiency of Ceramic Furnaces". *Sprechsaal - International Magazine Ceramics, Glass and Materials Technology*, Vol. 125, No. 8, August 1992, pp. 487-494.
95. Águas, M.P.N., Azevedo, J.L.T. and Carvalho, M.G. - "Modelling the Heat Transfer in a Fluidised Bed Combustor". *International Journal of Heat and Technology*, Vol. 10, No. 1.2, 1992, pp. 107-124.
96. Oliveira, L.A., Costa, J.J., Carvalho, M.G., Gerhardt, H.J. and Kramer, C. - "On Aerodynamic Sealing for Industrial Applications". *Journal of Wind Engineering and Industrial Aerodynamics*, Vol. 37, 1991, pp. 255-268.
97. Coelho, P., Pereira, J.C.F. and Carvalho, M.G. - "Calculation of Laminar Recirculating Flows using a Local non-Staggered Grid Refinement System". *International Journal for Numerical Methods in Fluids*, Vol. 12, No. 6, April 1991, pp. 535-557.
98. Carvalho, M.G. and Lockwood, F.C. - "Thermal Comparison of Glass Furnace Operation with Oil and Natural Gas". *Glastechnische Berichte - International Journal of Glass Science and Technology*, Vol. 63, No. 9, 1990, pp. 233-243.
99. Carvalho, M.G. and Coelho, P. - "Numerical Prediction of an Oil-fired Water Tube Boiler". *International Journal of Engineering Computations*, Vol. 7, No. 3, September 1990, pp. 227-234.
100. Carvalho, M.G., Semião, V., Lockwood, F.C. and Papadopoulos, C. - "Predictions of Nitric Oxide Emissions from an Industrial Glass-melting Furnace". *Journal of the Institute of Energy*, Vol. LXIII, No. 454, March 1990, pp. 39-47.
101. Azevedo, J.L.T., Carvalho, M.G. and Durão, D.F.G. - "Mathematical Modelling of Coal Fired Fluidized Bed Combustors". *Combustion and Flame*, Vol. 77, No. 1, July 1989, pp. 91-100.
102. Carvalho, M.G. and Coelho, P. - "Heat Transfer in Gas Turbine Combustors". *AIAA Journal of Thermophysics and Heat Transfer*, Vol. 3, No. 2, April 1989, pp. 123-131.
103. Carvalho, M.G., Oliveira, P. and Semião, V. - "Modelling and Optimization of an Industrial Glass Furnace". Presented at the Tenth International Symposium on Combustion Processes, Warsaw, Poland, August 1987. *Progress in Astronautics and Aeronautics, AIAA Series, Dynamics of Reacting Systems*, Washington, D.C., Vol. 113, 1988, pp. 363-384.
104. Carvalho, M.G., Oliveira, P. and Semião, V. - "A Three-dimensional Modelling of an Industrial Glass Furnace". *Journal of the Institute of Energy*, Vol. LXI, No. 448, September 1988, pp. 143-156.
105. Carvalho, M.G., Durão, D.F.G. and Pereira, J.C.F. - "Prediction of the Flow, Reaction and Heat Transfer in an Oxy-Fuel Glass Furnace". *International Journal of Engineering Computations*, Vol. 4, No. 1, March 1987, pp. 23-34.
106. Carvalho, M.G., Durst, F. and Pereira, J.C.F. - "Predictions and Measurements of Laminar Flow over Two-dimensional Obstacles". *Applied Mathematical Modelling*, Vol. 11, February 1987, pp. 23-34.
107. Carvalho, M.G. and Lockwood, F.C. - "Mathematical Simulation of an End-Port Regenerative Glass Furnace". *Proc. Institution of Mechanical Engineers*, Vol. 199, No. C2, 1985, pp. 113-120.

#### e) International Books

1. Tavares, G. Zsigraiová, Z., Semião, V. and Carvalho, M.G. – "Municipal Solid Waste Valorisation as Energy for Isolated Communities". Presented at the International Conference on New and Renewable Energy Technologies for Sustainable Development, Évora, Portugal, 28 June-1 July 2004. *2004 New*

- and Renewable Energy technologies for Sustainable Development* (Ed. Maria da Graça Carvalho and Naim Afgan), World Scientific, Singapore, 2007, pp. 67-76.
2. Lerer, M., Duic, N., Alves, L.M. and Carvalho, M.G. – “H2RES, Energy Planning Tool for Increasing the Penetration of Renewable Energy Sources in Island Energy Supply”. Presented at the International Conference on New and Renewable Energy Technologies for Sustainable Development, Évora, Portugal, 28 June-1 July 2004. *2004 New and Renewable Energy technologies for Sustainable Development* (Ed. Maria da Graça Carvalho and Naim Afgan), World Scientific, Singapore, 2007, pp. 15-29.
  3. Carvalho, M.G. and Alves, L.M. – “Towards a Clean Energy for the Future – The Research Group on Energy and Sustainable Development of IST”. English translation of the invited lecture presented at the Seminar “A Investigação Científica na Universidade Técnica de Lisboa”, Lisbon, Portugal, 3 February 2006. *A Portrait of State-of-the-Art Research at the Technical University of Lisbon* (Ed. Manuel S. Pereira), Springer, 2007, pp. 341-353.
  4. Tavares, G., Semião, V., Carvalho, M.G. and Zsigraiová, Z. – “Municipal Solid Waste Valorisation as Energy for Isolated Communities”. Presented at the International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002. *100% RES – A Challenge for Island Sustainable Development* (Ed. Cipriano Marín, Luís Manuel Alves, Arthouros Zervos), Instituto Superior Técnico and UNESCO Center of the Canary Islands, 2005, pp. 255-263.
  5. Duic, N., Alves, L.M. and Carvalho, M.G. – “Optimising the Integration of Hydrogen Usage with Intermittent Energy Sources”. Apresentado na International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002. *100% RES – A Challenge for Island Sustainable Development* (Ed. Cipriano Marín, Luís Manuel Alves, Arthouros Zervos), Instituto Superior Técnico and UNESCO Center of the Canary Islands, 2005, pp. 217-227.
  6. Alves, L.M., Roriz, L., Carvalho, M.G. and Melim Mendes, J. – “Integrating Self Supply into End Use for Sustainable Tourism in Islands”. Presented at the International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002. *100% RES – A Challenge for Island Sustainable Development* (Ed. Cipriano Marín, Luís Manuel Alves, Arthouros Zervos), Instituto Superior Técnico and UNESCO Center of the Canary Islands, 2005, pp. 169-181.
  7. Costa, A., Gonçalves, G., Duic, N. and Carvalho, M.G. – “End-use Versus Supply Side Approach for GHG Reduction in SIDS. Case Study: Cape Verde Islands”. Presented at the International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002. *100% RES – A Challenge for Island Sustainable Development* (Ed. Cipriano Marín, Luís Manuel Alves, Arthouros Zervos), Instituto Superior Técnico and UNESCO Center of the Canary Islands, 2005, pp. 27-38.
  8. Chen, F., Carvalho, M.G. and Alves, L.M. – “Barriers for Commercial Application of Fuel Cells”. International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002. *New and Renewable Energy Technologies for Sustainable Development* (Ed. Naim Hamdia Afgan, Maria da Graça Carvalho) A.A.Balkema Publishers, 2004, pp. 309-329.
  9. Costa, A., Monteiro, C., Miranda, V., Alves, L. M. and Carvalho, M.G. - “Assessment of Renewable Energy using a Geographical Information System”. Presented at the Euro Conference on New and Renewable Technologies for Sustainable Development”, Funchal, Madeira, Portugal, 26-29 June 2000. *New and Renewable Technologies for Sustainable Development*, (Ed. Naim Hamdia Afgan, Maria da Graça Carvalho), Kluwer Academic Publishers, 2002, pp. 211-220.
  10. Duic, N., Alves, L. M. and Carvalho, M.G. - “Kyoto Protocol Objectives by Promoting the Technology Transfer to Small Island Developing Countries: Santo Antão, Cape Verde”. Presented at the Euro Conference on New and Renewable Technologies for Sustainable Development”, Funchal, Madeira, Portugal, 26-29 June 2000. *New and Renewable Technologies for Sustainable Development*, (Ed. Naim Hamdia Afgan, Maria da Graça Carvalho), Kluwer Academic Publishers, 2002, pp. 105-116.
  11. Afgan, N., Carvalho, M.G., Hovanov, N. – “Sustainability Assessment of Renewable Energy Systems”. Presented at the Euro Conference on New and Renewable Technologies for Sustainable Development”, Funchal, Madeira, Portugal, 26-29 June 2000. *New and Renewable Technologies for Sustainable Development*, (Ed. Naim Hamdia Afgan, Maria da Graça Carvalho), Kluwer Academic Publishers, 2002, pp. 11-33.
  12. Afgan, N., Carvalho, M.G., Coelho, P. and Martins, N. - "Power Plant Boiler Expert System". Presented at the Third International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 3-6 July 1995. Accepted for publication in *Combustion Technologies for a Clean Environment*, Vol. 3 of the series "Energy, Combustion and the Environment", Taylor & Francis, 2002, pp.1437-1459.

13. Carvalho, M.G. and Nogueira, M. - "Model Based Study for Oxy-Fuel Furnaces for Low-NO<sub>x</sub> Melting Process". Presented at the Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993. *Combustion Technologies for a Clean Environment*, Vol. 2, Part B, of the series "Energy, Combustion and the Environment", Gordon and Breach Publishers, 1999, pp. 941-959.
14. Afgan, N. and Carvalho, M.G. - "Boiler Efficiency Assessment Expert System". Presented at the Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993. *Combustion Technologies for a Clean Environment*, Vol. 2, Part B, of the series "Energy, Combustion and the Environment", Gordon and Breach Publishers, 1999, pp. 863-874.
15. Saraiva, P., Azevedo, J.L.T. and Carvalho, M.G. - "Analysis of CAFBC Behaviour Using a Numerical Model". Presented at the Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993. *Combustion Technologies for a Clean Environment*, Vol. 2, Part B, of the series "Energy, Combustion and the Environment", Gordon and Breach Publishers, 1999, pp. 645-651.
16. Coelho, P.J. and Carvalho, M.G. - "Mathematical Modelling of NO Formation in a Power Station Boiler". Presented at the Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993. *Combustion Technologies for a Clean Environment*, Vol. 2, Part A, of the series "Energy, Combustion and the Environment", Gordon and Breach Publishers, 1999, pp. 291-310.
17. Azevedo, J.L.T. and Carvalho, M.G. - "Numerical Modelling of the Effect of Using Flue Gas Recirculation in Pulverised Coal Combustion". Presented at the Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993. *Combustion Technologies for a Clean Environment*, Vol. 2, Part A, of the series "Energy, Combustion and the Environment", Gordon and Breach Publishers, 1999, pp. 111-122.
18. Carvalho, M.G. and Ramos, J.A. - "The Role of Computational Fluid Dynamics in the Building Energy and Environmental Analysis". Presented at PLEA 1998 - The 15th International Conference on Passive and Low Energy Architecture. Lisbon, Portugal, 1-3 June 1998. *Environmentally Friendly Cities* (Ed. Eduardo Maldonado and Simos Yannas), James & James (Science Publishers Ltd.), June 1998, pp. 583-586.
19. Carvalho, M.G., Wang, J. and Nogueira, M. - "Investigation of Glass Melting and Fining Processes by Means of Comprehensive Mathematical Model". Presented at the Fifth International Conference on the Advances in Fusion and Processing of Glass, Toronto, Canada, 27-31 July 1997. *Advances in Fusion and Processing of Glass, Ceramic Transactions*, (Ed. Alexis G. Clare and Linda E. Jones), The American Ceramic Society, 1998, Vol. 82, pp. 143-152.
20. Wang, J., Carvalho, M.G. and Nogueira, M. - "Physically-based Numerical Tool for the Study of Glass Melt Quality". Presented at the IV International Seminar on Mathematical Simulation in Glass Melting, Vsetin, Czech Republic, 16-17 June 1997, *Proceedings*, pp. 67-76. Edited by Czech Glass Society and TNO, 1997.
21. Wang, J., Farias, T.L., Carvalho, M.G. and Nogueira, M. - "Radiation Modelling Procedure for Numerical Simulation of Glass Melting Furnaces". Presented at the IV International Seminar on Mathematical Simulation in Glass Melting, Vsetin, Czech Republic, 16-17 June 1997, *Proceedings*, pp. 10-20. Edited by Czech Glass Society and TNO, 1997.
22. Meunier, P., Costa, M. and Carvalho, M.G. - "An Experimental and Numerical Study of Lifted Turbulent Jet Flames". Presented at the 8th International Symposium on Transport Phenomena (ISTP-8) in Combustion, San Francisco, USA, 16-20 July 1995. *Transport Phenomena in Combustion*, Vol. 1 (Ed. S.H. Chan), Taylor & Francis, 1996, pp. 486-496.
23. Carvalho, M.G., Nogueira, M. and Xeira, A.P. - "Modelling Technologies for more Efficient and Cleaner Furnaces, Kilns and Ovens". Presented at the ECCOMAS 96 Conference, Paris, France, 9-13 September 1996. *Computational Methods in Applied Sciences 96*, (Ed. J.A. Désidéri, C. Hirsch, P. Le Tallec, E. Oñate, M. Pandolfi, J. Périaux, E. Stein), J. Wiley & Sons Ltd., 1996, pp. 342-346.
24. Farias, T.L., Carvalho, M.G., Köylü, Ü.Ö. and Faeth, G.M. - "Total Scattering and Absorption Cross Sections of Carbonaceous Soot Particles". *Radiative Heat Transfer-I*, Ed. M.P. Menguç, Begell House, Inc., 1996, pp. 296-308.
25. Carvalho, M.G., Nogueira, M. and Silva, P. - "Regenerative Cycle Optimization Via Physically-Based Dynamical Modelling-Application to Industrial Glass Furnaces". Presented at the 1993 ICHMT International Symposium on New Developments in Heat Exchangers, Lisbon, Portugal, 6-9 September 1993. *New Developments in Heat Exchangers*, (Ed. Afgan, N., Carvalho, M.G., Bar-Cohen, A., Butterworth, D. and Roetzel, W.), Gordon and Breach Science Publishers, 1996, pp. 577-586.

26. Azevedo, J.L.T., Carnall, F. and Carvalho, M.G. - "Heat Transfer Assessment of a Boiler Convective Section". Presented at the 1993 ICHMT International Symposium on New Developments in Heat Exchangers, Lisbon, Portugal, 6-9 September 1993. *New Developments in Heat Exchangers* (Ed. Afgan, N., Carvalho, M.G., Bar-Cohen, A., Butterworth, D. and Roetzel, W.), Gordon and Breach Science Publishers, 1996, pp. 117-129.
27. Afgan, N. and Carvalho, M.G. - "Heat Exchanger Fouling Assessment Expert System ". Presented at the 1993 ICHMT International Symposium on New Developments in Heat Exchangers, Lisbon, Portugal, 6-9 September 1993. *New Developments in Heat Exchangers*, (Ed. Afgan, N., Carvalho, M.G., Bar-Cohen, A., Butterworth, D. and Roetzel, W.), Gordon and Breach Science Publishers, 1996, pp. 105-115.
28. Coelho, P.J., Gonçalves, J.M. and Carvalho, M.G. - "Modelling of Radiative Heat Transfer in Enclosures Containing Obstacles". Presented at the 2nd European Thermal-Sciences and 14th UIT National Heat Transfer Conference, Rome, Italy, 29-31 May 1996. *2nd European Thermal-Sciences and 14th UIT National Heat Transfer Conference 1996* (Ed. G.P. Celata, P. Di Marco, A. Mariani), Edizioni ETS, Pisa, 1996, Vol. 3, pp. 1463-1469.
29. Pereira, J.C.F., Coelho, P.J., Carvalho, M.G. and Rocha, J.M.P. - "Prediction of Flame Shape and Brightness Distribution in the Visible Range". Presented at the ICHMT 2nd International Forum on Expert Systems and Computer Simulation in Energy Engineering, University of Erlangen, Germany, 17-20 March 1992. *Expert Systems and Computer Simulation in Energy Engineering* (edited by K. Hanjaliand J.H. Kim), Begell House, 1995, pp. 322-327.
30. Carvalho, M.G., Coelho, P.J. and Nogueira, M. - "Applicability of 3-D Mathematical Models of Thermal Equipment in the Development of Expert Systems". Presented at the ICHMT 2nd International Forum on Expert Systems and Computer Simulation in Energy Engineering, University of Erlangen, Germany, 17-20 March 1992. *Expert Systems and Computer Simulation in Energy Engineering* (edited by K. Hanjaliand J.H. Kim), Begell House, 1995, pp. 293-298.
31. Azevedo, J.L.T. and Carvalho, M.G. - "Modelling the Near Region of a Swirling Pulverised Coal Burner". Presented at the 1st International Conference on Combustion Technologies for a Clean Environment, Vilamoura, Portugal, 3-6 September 1991. *Combustion Technologies for a Clean Environment* (edited by M.G. Carvalho, W.A. Fiveland, F.C. Lockwood and C. Papadopoulos), Volume 1 of series "Energy, Combustion and the Environment", Gordon and Breach, pp. 169-181, 1995.
32. Carvalho, M.G., Coelho, P.J., Moreira, A.L.N., Silva, A.M.C. and Silva, T.F. - "Comparison of Measurements and Predictions of Wall Heat Flux and Gas Composition in an Oil-Fired Utility Boiler". Presented at the 25th International Symposium on Combustion, University of California, Irvine, USA, 31 July-5 August 1994. *Twenty-Fifth Symposium (International) on Combustion*, The Combustion Institute, pp. 227-234.
33. Azevedo, J.L.T., Branco, A.J., Carvalho, M.G. and Coimbra, C.F.M. - "NO<sub>x</sub> Emissions from a Front Wall Fired Pulverised Coal Boiler". Presented at the International Conference on Energy Efficiency in Process Technology, Athens, Greece, 19-22 October 1992. *Energy Efficiency in Process Technology*, (Ed. P.A. Pilavachi), Elsevier Applied Science, 1993, pp. 872-882.
34. Carvalho, M.G., Farias, T. and Nogueira, M. - "Radiative Heat Transfer Prediction Using Discrete Transfer Method and Its Application to a Glass Furnace". Presented at Eurotherm Seminar No. 21, Villeurbanne, France, 3-5 February 1992. *Heat Transfer in Semi Transparent Media* (Ed. F.A. Allard, J.F. Sacadura and M. Spiga) Editions Européennes Thermique et Industrie, 1993, pp. 194-206.
35. Carvalho, M.G. - "Glass-Melting Furnaces, Cement Kilns and Baking Ovens". Invited Lecture at the World Congress of Chemical Engineers, Germany, 16-21 June 1991. *Strategies 2000* (Ed. D. Behrens), Proceedings of 4th World Congress of Chemical Engineering, Editor Dechema, pp. 509-520, 1992, Karlsruhe.
36. Carvalho, M.G. and Martins, N. - "Heat and Mass Transfer in an Electrically Heated Natural Convection Baking Oven". Presented at the 1st European Thermal-Sciences & Third U.K. National Heat Transfer Conference, University of Birmingham, United Kingdom, 16-18 September 1992. *Heat Transfer*, Vol. 1. Institution of Chemical Engineers Symposium Series, No. 129, 1992, pp. 699-708.
37. Carvalho, M.G., Farias, T. and Martins, A. - "A Three Dimensional Modelling of the Radiative Heat Transfer in a Cement Kiln". Presented at Heat Transfer 92 - Advanced Computational Methods in Heat Transfer, Milan, Italy, 7-10 July 1992. *Advanced Computational Methods in Heat Transfer, Vol. 1: Conduction, Radiation and Phase Change*, (Ed. L.C. Wrobel, C.A. Brebbia, A.J. Nowak) Elsevier Applied Science, 1992, pp. 141-160.
38. Carvalho, M.G., Farias, T. and Nogueira, M. - "Radiative Heat Transfer Prediction Using Discrete Transfer Method and its Application to a Glass Furnace". Presented at Eurotherm Seminar No. 21. *Heat Transfer in Semi-Transparent Media* (Ed. J.F. Sacadura and F. Allard), Lyon, France, 3-5 February 1992, pp.187-196.

39. Carvalho, M.G. and Semião, V. - "On the Effect of Combustion Excess - Air Level on Nitric Oxide Emissions from Glass Furnaces". Presented at the 9th Miami International Congress on Energy and Environment, Miami Beach, Florida, USA, 11-13 December 1989. *Energy and Environmental Progress I, Volume F - Environment and Energy*, Ed. T.N. Veziroglu, New York, 1992, pp. 83-102.
40. Carvalho, M.G. and Martins, N. - "Mathematical Modelling of Heat and Mass Transfer Phenomena in Baking Ovens". Presented at CMEM - 5th Int. Conference on Computational Methods and Experimental Measurements, Montreal, Canada, 23-26 July 1991. *Computational Methods and Experimental Measurements V*, Ed. A. Sousa, C.A. Brebbia, G.M. Carlomagno, Computational Mechanics Publications, 1991, pp. 359-370.
41. Carvalho, M.G. and Nogueira, M. - "Modelling of Fluid Flow and Heat Transfer in a Glass Melting Tank" - Presented at the 7th International Conference on Numerical Methods in Laminar and Turbulent Flow, Stanford, USA, 15-19 July 1991. *Numerical Methods in Laminar and Turbulent Flow*, Volume VII - Part II, Ed. C. Taylor, J.H. Chin, G.M. Homsy, Pineridge Press, 1991, pp. 1363-1373.
42. Carvalho, M.G. and Nogueira, M. - "Mathematical Modelling of Heat Transfer in an Industrial Glass Furnace". Presented at Eurotherm Seminar No. 17, 8-10 October 1990, Cascais, Portugal. *Heat Transfer in Radiating and Combusting Systems*, Ed. Carvalho, M.G., Lockwood, F.C. and Taine, J., Springer Verlag, 1991, pp. 374-392.
43. Pereira, J.C.F., Coelho, P., Rocha, J.M.P. and Carvalho, M.G. - "Numerical Prediction of Flame Image". Presented at Eurotherm Seminar No. 17, 8-10 October 1990, Cascais, Portugal. *Heat Transfer in Radiating and Combusting Systems*, Ed. Carvalho, M.G., Lockwood, F.C. and Taine, J., Springer Verlag, 1991, pp. 146-160.
44. Carvalho, M.G., and Nogueira, M. - "Modelling Fluid Flow and Heat Transfer in an Industrial Glass Furnace". Presented at ESPRIT 90 - ESPRIT Conference Week, Brussels, Belgium, 12-16 November 1990, Proceedings of the Annual ESPRIT Conference, Edited by C.E.C. DG XIII, Kluwer Academic Publishers, 1990, pp. 530-543.
45. Carvalho, M.G., Lopes, J.B. and Nogueira, M. - "A Three Dimensional Procedure for Combustion and Heat Transfer in Industrial Furnaces" - *Advanced Computational Methods in Heat Transfer*, Portsmouth, United Kingdom, 17-20 July 1990, Eds. Wrobel, L.C., Brebbia, C.A. and Nowak, A.J., Springer Verlag, 1990, pp. 171-183.
46. Barreiros, A., Carvalho, M.G., Freitas, M. and Pereira, J.C.F. - "Modelling of Heat Transfer in Laser Surface Hardening Materials" - *Advanced Computational Methods in Heat Transfer*, Portsmouth, United Kingdom, 17-20 July 1990, Vol. 3, Eds. Wrobel, L.C., Brebbia, C.A. and Nowak, A.J., Springer Verlag, 1990, pp. 41-53.
47. Azevedo, J.L.T., Carvalho, M.G. and Foster, P. - "Modelling of Wood Combustion in Fluidised Bed". 5th European Conference Biomass for Energy and Industry, Lisbon, Portugal, 9-13 October 1989, Edited by G. Grassi, G. Gosse, G. dos Santos, Elsevier Applied Science, London, Vol. II, pp. 2575-2579.
48. Barreiros, A., Carvalho, M.G. and Pereira, J.C.F. - "Solid-Liquid Phase-Change Heat Transfer and Interface Motion in Laser Surface Hardening Problems". Proceedings of 6th Int. Conf. on Numerical Methods for Thermal Problems, Swansea, United Kingdom, 3-7 July 1989, Edited by R.W. Lewis and K. Morgan, Volume VI, Part 1, pp. 46-56.
49. Carvalho, M.G. and Durão, D.F.G. - "Computer Aided Design of Industrial Furnaces and Boilers". Presented at the Computer Integrated Manufacturing - 5th CIM Europe Conference, 17-19 May 1989, Athens, Greece. Edited by C. Halatsis and J. Torres, IFS Publications, U.K., Springer-Verlag, pp. 63-74.
50. Azevedo, J.L.T., Carvalho, M.G., Durão, D.F.G., Ferrão, P., Heitor, M.V., Moreira, A.L.N. and Pereira, J.C.F. - "Fluidized Bed Combustion of Coals and Different Types of Wastes" - *Fluidized Bed Combustor Design, Construction and Operation* - Ed. Sens, P.F. and Wilkinson, J.K. - Elsevier Applied Science, London and New York, 1988, pp. 27-36.
51. Carvalho, M.G., Durão, D.F.G., Heitor, M.V., Pereira, J.C.F., Lockwood, F.C., Durst, F., Sommerfeld, M. and Silva, B. - "Improved Design for Glass Smelting Kilns". Proceedings of a Contractors' Meeting, Brussels, Belgium, 29 June 1988, Edited by P.A. Pilavachi, C.E.C., pp. 187-205.

#### **f) Invited Lectures in Conferences**

1. Carvalho, M.G. – "Building Knowledge Europe". The Future of Knowledge: Evolutionary Challenges of the 21<sup>st</sup> Century, Zagreb, Croatia, 17-20 November 2005.
2. Alves, L.M., Domingues, A. and Carvalho, M.G. – "Small Scale LNG in Madeira Island". 1<sup>st</sup> International Conference on Small Scale LNG in Europe, Oslo, Norway, 29-30 September 2005.

3. Carvalho, M.G and Afgan, N.H. – “Sustainability Index of New and Renewable Energy Power Plants”. The First International Exergy, Energy and Environment Symposium (IEEES-1), Izmir, Turkey, 13-17 July 2003.
4. Melim Mendes, J. M., Carvalho, M.G., Duic, N. and Alves, L. M. – “Green Hotel”. 2nd Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 15-20 June 2003.
5. Afgan, N.H. and Carvalho, M.G. – “Distance Learning for Sustainability Education: EURO Courses in Multimedia Environment on Sustainability Assessment of Energy Systems”. The World Environmental Education Congress, Espinho, Portugal, 20-24 May 2003. Published in *World Trends in Environmental Education* (Ed. U. Azeiteiro, F. Gonçalves, W. Leal Filho, F. Morgado, M. Pereira), Peter Lang Europäischer Verlag der Wissenschaften, pp. 53-77
6. Carvalho, M.G. - “A Declaração de Bolonha e a Formação e Qualificação Profissional dos Engenheiros”. Congresso Nacional da Engenharia de Estruturas – ESTRUTURAS 2002, Lisbon, Portugal, 10-13 July 2002, Proceedings, pp. 23-26.
7. Carvalho, M.G., Alves, L., Gonçalves, G., Roriz, L. and Sarmiento, P. - “New and Renewable Energy Sources for Sustainable Communities”. Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 2-7 June 2002.
8. Duic, N., Alves, L. M. and Carvalho, M.G. - “Potential of Kyoto Protocol Clean Development Mechanism in Transfer of Energy Technologies to Developing Countries”. 18<sup>th</sup> World Energy Congress, Buenos Aires, Argentina, 21-25 October 2001.
9. Carvalho, M.G. and Azevedo, J. L. T. - "Heat Transfer Model-based Control in Industrial Equipment", 3rd. European Thermal-Sciences Conference 2000, Heidelberg, Germany, 10-13 September 2000. Published in *3rd European Thermal-Sciences Conference 2000* (Ed. E. W. P. Hahne, W. Heidemann, K. Spindler), Edizioni ETS, Pisa, 2000, Vol. 1, pp. 35-39
10. Carvalho, M.G. - "Mathematical Modelling in the Glass Making Industry". 15th Conference of ATIV "Glass Industry towards 2000", Parma, Italy, 15-17 September 1999.
11. Afgan, N. and Carvalho, M.G. - "Sustainability Indicators for Energy Systems". The 4th International Conference on New Energy Systems and Conversions, Osaka, Japan, 27-30 June 1999.
12. Carvalho, M.G., Azevedo, J.L.T. and Nogueira, M. - "Model Based Control of Industrial Combustion Equipment". Mediterranean Combustion Symposium, Antalya, Turkey, 20-25 June 1999.
13. Carvalho, M.G., Nogueira, M. and Speranskaia, N. - "A Physical-model Expert System for the Optimization of Glass Melting Furnace Operation". 18th International Congress on Glass, S. Francisco, USA, 5-10 July 1998, Proceedings (Ed. Manoj K. Choudhary, Norman T. Huff, Charles H.Drummond III), B7, pp. 1-8.
14. Afgan, N. and Carvalho, M.G. - "Sustainability and Heat Exchanger Design". International Conference and Exhibit Heat Exchangers for Sustainable Development, Lisbon, Portugal, 15-18 June 1998, Proceedings, pp. 19-28.
15. Carvalho, M.G. - "Projecto, Operação e Controlo de Equipamento Industrial de Combustão com Base em Simulação Computacional". V Encontro de Mecânica Computacional, Guimarães, Portugal, 20-22 October 1997, Proceedings, Vol. 2, pp. 1167-1180.
16. Carvalho, M.G. and Farias, T. L. - "Modelling of Heat Transfer in Radiating and Combusting Systems". Fifth UK National Conference on Heat Transfer, London, United Kingdom, 17-18 September 1997.
17. Carvalho, M.G., Speranskaia, N., Wang, J. and Nogueira, M. - "Modelling of Glass Melting Furnaces: Applications to Control, Design and Operation Optimization". Fifth International Conference on the Advances in Fusion and Processing of Glass, Toronto, Canada, 27-31 July 1997. Published in *Advances in Fusion and Processing of Glass II, Ceramic Transactions*, (Ed. Alexis G. Clare and Linda E. Jones), The American Ceramic Society, 1998, Vol. 82, pp. 109-135.
18. Carvalho, M.G., Azevedo, J. L. T. and Coelho, L. - "Assessment of NO<sub>x</sub> Abatement In-furnace Control Technologies on Coal-fired Utility Boilers". 24th Annual Conference of the Slovak Society of Chemical Engineers, Papiernicka, Slovakia, 15-19 June 1997, Proceedings, pp. 577-579.
19. Carvalho, M.G. - "NO<sub>x</sub> Abatement Technologies in Coal-fired Utility Boilers". 4th European Conference on Industrial Furnaces and Boilers, INFUB, Espinho, Portugal, 1-4 April 1997.
20. Carvalho, M.G. - "Control, Design and Operation Optimization of Industrial Combustion Equipment Based on Computer Simulation". CHISA 96, Prague, Czech Republic, 25-30 August 1996.
21. Carvalho, M.G. - "Project Co-Ordination and Management in the European Union". First Custnet International Conference on Coal Research & Development Through Collaboration in Europe, Ustron, Beskidy Mountains, Poland, 26-28 April 1995.

22. Carvalho, M.G. - "Mathematical Modelling of Industrial Furnaces and Boilers". 3rd European Conference on Industrial Furnaces and Boilers, INFUB, Lisbon, Portugal, 18-21 April 1995.
23. Carvalho, M.G. - "Radiation and Combustion". Poster Session Reviewer and Organizer of the Poster Session of the 10th International Heat Transfer Conference, Brighton, United Kingdom, 14-18 August 1994.
24. Carvalho, M.G., Azevedo, J.L.T., Coelho, P.J. and Nogueira, M. - "Mathematical Modelling of Heat Transfer in Combustion Chambers". 12th Brazilian Congress of Mechanical Engineering - COBEM, Associação Brasileira de Ciências, Brazilia, Brazil, 7-10 December 1993, Proceedings, pp. 15-23.
25. Carvalho, M.G. and Nogueira, M. - "Effects of Flame Emissivity on Temperature Distribution and Glass Flow in Molten Glass". Invited Lecture at the Scandinavian Society of Glass Technology Annual Meeting, Naantali, Finland, 6-8 June 1993.
26. Carvalho, M.G., Azevedo, J.L.T. and Coelho, P.J. – "Mathematical Modelling of Industrial Combustion Chambers. Application to Power Station Boilers". Seminar on Modelling and Simulation of Coal-Fired Furnaces in Power Plants (University of Santiago de Compostela and Endesa), Santiago de Compostela, Spain, 13-15 January 1993.
27. Carvalho, M.G. and Nogueira, M. - "Energy Efficiency and Pollution Abatement in Glass Furnaces, Baking Ovens and Cement Kilns". Proceedings of the International Conference on Energy Efficiency in Process Technology, Athens, Greece, 19-22 October 1992, (Keynote Lecture) in *Energy Efficiency in Process Technology* (Ed. P.A. Pilavachi), Elsevier Applied Science, 1993, pp. 753-766.
28. Carvalho, M.G., Coelho, P.J. and Nogueira, M. - "Mathematical Modelling of Heat Transfer in Combustion Chambers". 1st European Thermal-Sciences and 3rd U.K. National Heat Transfer Conference, University of Birmingham, United Kingdom, 16-18 September 1992, Proceedings, Vol. 1 , pp. 1-14.
29. Carvalho, M.G. and T. Farias - "Radiative Heat Transfer in Combustion Chambers". Eurotherm Seminar No. 15, Toulouse, France, 4-6 December 1991 - *Heat Transfer in Internal Combustion Engines*, Editor Institut de Mécanique des Fluides de Toulouse, pp. 333-374.

#### **g) Portuguese Journals**

1. Carvalho, M.G. – “Do Rio a Joanesburgo”. *INGENIUM* – Journal of the Ordem dos Engenheiros, October 2002, No. 70, II series, pp. 14-15.
2. Carvalho M.G. – “A Cooperação Científica para o Desenvolvimento Sustentável – A sua Implementação no Contexto da CPLP”. (Summary of a presentation with the same title published in *INGENIUM* in November 2001). *ESPORO*, August 2002, No.50, page 6.
3. Carvalho, M.G. – “ A Cooperação Científica para o Desenvolvimento Sustentável – A sua Implementação no Contexto da CPLP”. *INGENIUM* – Journal of the Ordem dos Engenheiros, November 2001, No. 63, II Series, pp 18-22.
4. Pitarna, R.A., Ramos, J.E. and Carvalho, M.G. – “Modelação Matemática no Desempenho de Câmaras Frigoríficas”. *O Instalador*, July-August 1998, No. 27/28, pp. 34-38.
5. Carvalho, M.G. – "Projecto, Operação e Controlo de Equipamento Industrial de Combustão com Base em Simulação Computacional". Journal of the Engineering Academy, No. 2, 2nd Semester 1997, pp. 6-12.
6. Carvalho, M.G. and Ramos, J.E. – "Mecânica dos Fluidos Computacional — Um Método Expedito para o Estudo do Ambiente e da Utilização da Energia em Edifícios". CONRAC'96, 1st International Refrigeration, Air Conditioning, Environment and Energy Congress, Lisbon, Portugal, 21-23 April 1996. Published in *Grau Celsius* - Journal of the APIRAC - Associação Portuguesa da Indústria de Refrigeração e Ar Condicionado.
7. Ruão, M., Costa, M. and Carvalho, M.G. – "Desenvolvimento de um Novo Sistema Não-intrusivo para Diagnósticos das Emissões de NO<sub>x</sub> em Sistemas de Queima Convencionais". *INGENIUM* – Journal of the Ordem dos Engenheiros, August 1997, No. 20, II Series, pp. 58-62.
8. Costa, M., Mourão, N., Bordalo, C. and Carvalho, M.G. – "Fornalha Semi-Industrial de 0,5 MW para o Estudo de Processos de Combustão". *INGENIUM* - Journal of the Ordem dos Engenheiros, November 1996, No. 13, II Series, pp. 72-76.
9. Carvalho, M.G. and Ramos, J.E. – "Qualidade do Ar de Interiores e Ventilação Geral". 2º Encontro Nacional de Engenharia Municipal, Figueira da Foz, Portugal, 13-15 June 1996. *O Instalador*, September-October 1996, No. 5 and 6, pp. 5-14.

10. Ruão, M., Mourão, M., Melo, J., Pratas, M., Silva, P., Costa, M. and Carvalho, M.G. – "Investigação Experimental do Processo de Combustão num Forno de Vidro". *INGENIUM* - Journal of the Ordem dos Engenheiros, August/September 1996, No. 11, II Series, pp. 74-78.
11. Carvalho, M.G. and Pitarma, R.A. – "Cálculo de Escoamentos Turbulentos com Transmissão de Calor em Geometrias Industriais Complexas" - *Educação e Tecnologia*, July 1992, No. 10, pp. 139-152.
12. Ramos, J.E. and Carvalho, M.G. – "A Acumulação de Calor-Estratégias de Gestão". *Grau Celsius* - Journal of the APIRAC - Associação Portuguesa da Indústria de Refrigeração e Ar Condicionado, May 1992, No. 49, pp. 23-34.
13. Carvalho, M.G. – "Modelação Físico-Matemática dos Fenómenos Ocorrentes dentro de Câmaras de Combustão". *Técnica*. December 1990, pp. 27-42.
14. Carvalho, M.G., Pereira, F.J.D. and Ramos, J.A.E. – "Cálculo de Escoamentos em Geometrias Industriais Complexas" - *APIRAC - Associação Portuguesa dos Industriais de Refrigeração e Ar Condicionado*. No. 24, II Series, October 1989, pp. 23-32.
15. Carvalho, M.G. – "Simulação Numérica de Câmaras de Combustão". *Tecnometal*. Revista de Informação Técnica, Metalúrgica e Metalomecânica, No. 55, March/April 1988, pp. 5-13.

#### **h) Theses**

Carvalho, M.G. – "Computer Simulation of a Glass Furnace". Ph.D.Thesis, University of London, 1983.

#### **i) International Conferences and Symposia**

1. Afgan, N.H., Andre, P. and Carvalho, M.G. – "Sustainability: the Management System Property". Portland International Conference on Management of Engineering and Technology, PICMET 06, Istanbul, Turkey, 8-13 July, 2006.
2. Afgan, N.H. and Carvalho, M.G. – "Hydrogen System Sustainable Development". NATO Advanced Research Workshop "Assessment of Hydrogen Energy for Sustainable Development: Energy & Environmental Security", Istanbul, Turkey, 12 June 2006
3. Santos, Ruy Spencer L. dos and Carvalho, M.G. – "Thermal Wind Solar Power Plant as a Solution for the Energy Security Supply Problem on Islands". "Poster" presented at the 2006 Ecostock –The Tenth International Conference on Thermal Energy Storage, Pomona, New Jersey, U.S.A., 31 May-2 June 2006.
4. Afgan, N. and Carvalho, M.G. – "Hydrogen System Sustainable Development". International Hydrogen Energy Congress, Istanbul, Turkey, 13-15 July 2005.
5. Fernandes, T.R., Yetano Roche, M., Hugh, M., Duic, N., Gonçalves, G. and Carvalho, M.G. – "A Discussion on the Potential for the Development of Hydrogen as an Energy Carrier in Portugal". Eighth International Conference on Energy for a Clean Environment – CLEAN AIR 2005, Lisbon, Portugal, 27-30 June 2005.
6. Pereira, S., Teixeira, M.A. and Carvalho, M.G. – "Corn as an Energy Crop in Alqueva-South of Portugal". Eighth International Conference on Energy for a Clean Environment – CLEAN AIR 2005, Lisbon, Portugal, 27-30 June 2005.
7. Ponte, A.F., Teixeira, M.A. and Carvalho, M.G. – "Designing a Biodiesel CDM Project in Indonesia". Eighth International Conference on Energy for a Clean Environment – CLEAN AIR 2005, Lisbon, Portugal, 27-30 June 2005.
8. Ponte, A.F., Teixeira, M.A. and Carvalho, M.G. – "Biodiesel, an Opportunity for CDM in Indonesia". Eighth International Conference on Energy for a Clean Environment – CLEAN AIR 2005, Lisbon, Portugal, 27-30 June 2005.
9. Teixeira, M.A. and Carvalho, M.G. – "Assessment of CDM Potential in North and Northeast Regions in Brazil". Eighth International Conference on Energy for a Clean Environment – CLEAN AIR 2005, Lisbon, Portugal, 27-30 June 2005.
10. Duic, N., Fonseca, J.P. and Carvalho, M.G. – "Increasing the Penetration of Renewable Energy by Merging Energy and Water Supply Systems: Case Study Corvo Island, Azores". 3<sup>rd</sup> Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 5-10 June 2005.
11. Lund, H., Duic, N., Krajacic, G. and Carvalho, M.G. – "Two Sustainable Energy System Analysis Models. A Comparison of Methodologies and Results". 3<sup>rd</sup> Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 5-10 June 2005.

12. Teixeira, M.A., Carvalho, M.G., Alves, L.M. and Santos, S.T. – “CDM in Africa – A Framework Analysis”. Energy, Water and Environment Systems, Dubrovnik, Croatia, 5-10 June 2005. 3<sup>rd</sup>. Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 5-10 June 2005.
13. Teixeira, M.A. and Carvalho, M.G. – “Analysis of the Cogeneration Power Production Potential within Brazilian Babassu Oil Extraction Industry”. 3<sup>rd</sup>. Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 5-10 June 2005.
14. Afgan, N. and Carvalho, M.G., – “Sustainability and Safety: The Hydrogen System Properties”. 1<sup>st</sup> World Congress of Young Scientists on Hydrogen Energy Systems, Torino, Italy, 18-20 May 2005. Proceedings HYSYDAYS, Ed. Naim H.Afgan, Fabio Orecchini and Adriano Santiangeli, pp. 19-25
15. Duic, N., Krajacic, G., Lerer, M., Firak, M. and Carvalho, M.G. – “Hydrogen from Renewable Energy as Energy Carrier in Island Energy Supply”. International Congress Energy and the Environment 2004, Opatija, Croatia, 27-29 October 2004.
16. Afgan, N.H., Jovanovic, M. and Carvalho, M.G. – “Sustainability Assessment of Solar Energy Systems”. International Solar Energy Conference ISEC 2004, Portland, Oregon, U.S.A., 11-14 July 2004.
17. Chen, F., Yetano Roche, M., Fernandes, T. R. and Carvalho, M.G. – “Analysis of Barriers to the Hydrogen Society in EU vs Emerging Economies”, International Conference on New and Renewable Energy Technologies for Sustainable Development, Evora, Portugal, 28 June-1 July 2004.
18. Duic, N., Lerer, M. and Carvalho, M.G. – “Increasing the Supply of Renewable Energy Sources in Island Energy Systems”. ENERGEX 2004 – 10<sup>th</sup>. International Energy Forum, Energy & Society, Lisbon, Portugal, 3-6 May 2004. Proceedings, Universidade Nova de Lisboa, Ed. Leopoldo Guimarães e Rodrigo Martins, pp. 330-337.
19. Chen, F., Fernandes, T., Roche, M. and Carvalho, M.G. – “Challenges to the Use of Hydrogen as an Energy Carrier in the EU vs Transition Economies”. ENERGEX 2004 – 10<sup>th</sup>. International Energy Forum, Energy & Society, Lisbon, Portugal, 3-6 May 2004. Proceedings, Universidade Nova de Lisboa, Ed. Leopoldo Guimarães e Rodrigo Martins, pp. 324-329.
20. Fernandes, T.R., Gonçalves, G., Chen, F. and Carvalho, M.G. – “Hy-Society – The European Hydrogen-Based Society” 2004 European ELE-DRIVE Transportation Conference and Exhibition on “Urban Sustainable Mobility is possible-now”, Cascais, Portugal, 18-19 March 2004.
21. Carvalho, M.G. and Nogueira, M. – “Modelização Matemática de Fornos – Novas Perspectivas de Aplicação”. 6<sup>th</sup> Brazilian Symposium on Glass, Campos do Jordão, Brazil, 21-25 September 2003.
22. Pitarma, R.A., Ramos, J.E. and Carvalho, M.G. – “Computational and Experimental Reduced-Scale Modelling of Air-Conditioned Rooms”. Eighth International IBPSA Conference on Building Simulation 2003, Eindhoven, Netherlands, 11-14 August 2003. Proceedings, Vol. III, pp. 1041-1045.
23. Carvalho, M.G. and Afgan, N.H. – “Sustainability Index of New and Renewable Energy Power Plants”. The First International Exergy, Energy and Environment Symposium (IEEES-1), Izmir, Turkey, 13-17 July 2003.
24. Alves, L.M., Fernandes, U. and Carvalho, M.G. – “Promoting the Use of New and Renewable Energy Sources for Island Sustainable Development”. Poster presented at the Seventh International Conference on Energy for a Clean Environment, Lisbon, Portugal, 7-10 July 2003.
25. Chen, F., Duic, N. and Carvalho, M.G. – “Introduction of Renewable Energy to Northwest of China Using the Clean Development Mechanism: Case Studies of Lanzhou and Urumqi”. Poster presented at the Seventh International Conference on Energy for a Clean Environment, Lisbon, Portugal, 7-10 July 2003.
26. Liposcak, M., Curto, P., Duic, N., and Carvalho, M.G. – “Feasibility of Microcogeneration Plant Installation: Portuguese Legal Framework Implemented in Croatia Circumstances”. Poster presented at the Seventh International Conference on Energy for a Clean Environment, Lisbon, Portugal, 7-10 July 2003.
27. Gonçalves, G. A., Farias, T. L. and Carvalho, M.G. – “CUTE – Clean Urban Transport for Europe”. Poster presented at the Seventh International Conference on Energy for a Clean Environment, Lisbon, Portugal, 7-10 July 2003.
28. Zsigraiová, Z., Tavares, G., Semião, V. and Carvalho, M.G. – “Municipal Solid Waste Incineration – Problems and Future Perspectives”, Seventh International Conference on Energy for a Clean Environment, Lisbon, Portugal, 7-10 July 2003.
29. Costa, A., Afgan, N. and Carvalho, M.G. – “An Expert System to Integrate Renewable Energy Sources in an Energy Supply System: the Solar Thermal Module”. 2<sup>nd</sup>. International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, 23-26 June 2003, Victoria Falls, Zambia.

30. Zsigraiová, Z., Tavares, G., Semião, V. and Carvalho, M.G. – “Municipal Solid Waste Incineration – Contribution to Sustainable Development of Energy and Environment”. 2<sup>nd</sup>. Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 15-20 June 2003, published in “Sustainable Development of Energy, Water and Environment Systems”, Proceedings, edited by Naim H. Afgan, Zeljko Bogdan, Neven Duić and Zvonimir Guzović, Vol. II, pp. 203-213.
31. Carvalho, M.G. and Duic, N. – “Increasing the Penetration of Intermittent Renewable Energy Sources in Island Energy Supply”. 2<sup>nd</sup> Dubrovnik Conference on Sustainable Development of Energy, Water and Environment Systems, Dubrovnik, Croatia, 15-20 June 2003.
32. Alves, L. M., Santos, R., Costa, A., Duic, N. and Carvalho, M.G. – “Promoting New and Renewable Energy Solutions for Energy, Water and Sustainable Tourism in Islands. International Conference on RES for Island, Tourism & Water Desalination, Creete, Greece, 26-28 May 2003.
33. Lopes dos Santos, R. S., Carvalho, M.G. and Alves, L. M. – “Integration of Renewable Energy Sources (RES) and Conventional Energies for the Resolution of the Energy Supply Problems on the Islands: a System to Integrate the RES as a Solution of the Energy Security Supply Problem on the Cape Verde Islands (Thermal Wind Solar Power Plant – TWSP)”. International Conference on RES for Island, Tourism & Water Desalination, Creete, Greece, 26-28 May 2003.
34. Alves, L. M., Roriz, L., Carvalho, M.G. and J. Melim Mendes – “Integrating Self Supply into End Use for Sustainable Tourism in Islands - The Madeira Island Green Hotel Project”. International Conference on RES for Island, Tourism & Water Desalination, Creete, Greece, 26-28 May 2003.
35. Ramos, J. E., Pitarma, R. A., Ferreira, M. E. and Carvalho, M.G. – “Indoor Environment Quality – A New Challenge for the Environmental Education”. First World Environmental Education Congress, Espinho, Portugal, 20-24 May 2003, Abstract Book , pp. 275.
36. Pitarma, R. A., Ferreira, M. E. and Carvalho, M.G. – “Modelling Temperature Fluctuations in Food Cold Storage to Prevent Toxicity Risk”. SETAC Europe 13<sup>th</sup> Annual Meeting, Hamburg, Germany, 27 April - 1 May 2003. Abstract Book, pp. 89.
37. Pitarma, R. A., Ramos, J. E. and Carvalho, M.G. – “Occupational Health: Simulation of Room Air – Contaminant Distribution”. SETAC Europe 13<sup>th</sup> Annual Meeting, Hamburg, Germany, 27 April - 1 May 2003.
38. Alves, L. M., Fernandes, U. and Carvalho, M.G. – “The Role of Renewable Energy Sources in the Development of Cape Verde Islands”. Conferência Energias Renovables Patrimoni I Desenvolupament Sostenible Insular, Campos (Balearic Islands), Spain, 7-8 April 2003
39. Fernandes, T.R.C., Chen, F., and Carvalho, M.G. – “Hysociety – The European Hydrogen (Based) Society”. 14<sup>th</sup> Annual U.S.Hydrogen Meeting, Washington, U.S.A., 4-6 March 2003.
40. Carvalho, M.G. and Costa, A. – “Plano Energético de Cabo Verde 2003-2012”. Conference International Água, Energia e Ambiente em Regiões Insulares, ELECTRA, 2-3 December 2002 Praia, 4 December 2002 Mindelo, Cape Verde.
41. Coelho, L.M.R., Azevedo, J.L.T. and Carvalho, M.G. – “Numerical Study of Boiler Retrofitting to use Recirculated Flue Gases with O<sub>2</sub> Injection”. 6<sup>th</sup> International Conference on Greenhouse Gas Control Technologies, Kyoto, Japan, 1-4 October 2002.
42. Ramos, J.E., Pitarma, R.A. and Carvalho, M.G. – “Thermal and Environmental Simulation of Buildings”. XXX IAHS World Congress on Housing, Coimbra, Portugal, 9-13 September 2002, Vol. 3, pp. 1537-1544.
43. Ramos, J.E., Martinho, N., Pitarma, R.A. and Carvalho, M.G. – “Three-dimensional Natural Convection in Rooms Connected to the Outside through Large Openings”. ROOMVENT 2002, 8<sup>th</sup> International Conference on Air Distribution in Rooms, Copenhagen, Denmark, 8-11 September 2002.
44. Afgan, N. and Carvalho, M.G. – “Multi-criteria Sustainability Assessment of Thermal Energy Systems”. Open Forum Session, Twelfth International Heat Transfer Conference, Grenoble, France, 18-23 August 2002.
45. Coelho, L.M.R., Azevedo, J.L.T., and Carvalho, M.G. – “Validation of CFD Numerical Model for Full Scale Pulverised Coal Fired Furnace”. Poster session, 29<sup>th</sup> International Symposium on Combustion, Sapporo, Japan, 21-26 July 2002.
46. Alves, L.M., Carvalho, M.G. and Domingues, A. – “The Potential of Liquefied Natural Gas as New Energy Source for Islands”. Work-in-Progress Forum, International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002.
47. Carvalho, M.G. – “New and Renewable Energies Electricity and Water in Outermost Regions - Introduction to the Subject”. Participation in the Round Table, International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002.

48. Carvalho, M.G., Chen, F., Alves, L.M. and Gonçalves, G. – “Hydrogen Combustion”. International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002.
49. Chen, F., Carvalho, M.G. and Alves, L.M. – “Barriers for Commercial Application of Fuel Cells”. International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002.
50. Rei, P., Fonseca, J.P., Duic, N. and Carvalho, M.G. – “Integration of Renewable Energy Sources in the Azores Archipelago”. International Conference on New and Renewable Technologies for Sustainable Development, Ponta Delgada, Azores, 24-26 June 2002.
51. Coelho, L.M.R., Ribeirete, A., Azevedo, J.L.T. and Carvalho, M.G. – “Numerical Modelling of NO<sub>x</sub> Reduction under Reburning Conditions using Two Different Approaches”. V Congreso Métodos Numéricos en Ingeniería, Madrid, Spain, 3-6 June 2002.
52. Duic, N., Jurekovic, T., Carvalho, M.G. and Bogdan, Z. – “Comparison of Liberalization of Electricity Market in Portugal and Croatia”. 5<sup>th</sup> International Symposium on Power and Process Plants”, Dubrovnik, Croatia, 24-26 May, 2002. Paper presented in Croatian.
53. Duic, N., Jurekovic, T. and Carvalho, M.G. - “Effects of Liberalising the Portuguese Energy Market”. HED Forum 2001 – 10<sup>th</sup> Forum – Energy Day in Croatia. Liberalisation and privatisation of energy sector in economies in transition and European Union – Experiences and Perspectives, Zagreb, Croacia, 7 December 2001. Proceedings, pp. 83-97. Paper published in Croatian.
54. Afgan, N. H. and Carvalho, M. G. – “Multi-criteria Assessment of New and Renewable Energy Power Plants”. 2<sup>nd</sup> International Conference on Energy Research and Development, Kuwait, 5-7 November 2001.
55. Coelho, L.M.R., Ramos, P., Azevedo, J.L.T. and Carvalho, M.G. - “ Feasibility Study of a Coal-Over-Coal Reburn Retrofit in a Power Plant Supported by Numerical Modelling” 6<sup>th</sup> International Conference on Technologies and Combustion for a Clean Environment, Oporto, Portugal, 9-12 July 2001.
56. Afgan, N. H., Carvalho, M. G. and Hovanov, N. – "Multi-criteria Sustainability Assessment of Clean Air Technologies" 6<sup>th</sup> International Conference on Technologies and Combustion for a Clean Environment, Oporto, Portugal, 9-12 July 2001.
57. Lu, P. S., Semião, V. and Carvalho, M. G. – “Numerical Prediction of a Swirling Turbulent Reaction Flow with a Non-linear Second-moment Closure”. 6<sup>th</sup> International Conference on Technologies and Combustion for a Clean Environment", Oporto, Portugal, 9-12 July 2001.
58. Chen, F. Z. and Carvalho, M.G. – “Hydrogen Production from Wastes by Thermochemical Processes”. 6<sup>th</sup> International Conference on Technologies and Combustion for a Clean Environment, Oporto, Portugal, 9-12 July 2001.
59. Prstic, S., Bar-Cohen, A., Afgan, N. H. and Carvalho, M. G. - "Sustainability Assessment of an Aluminium Heat Sink Design". International Conference on Compact Heat Exchangers and Enhancement Technology for the Process Industries, Davos, Suíça, 1-6 July 2001.
60. Afgan, N. H., Carvalho, M.G. and Morse, H. - “Euro Courses in Multimedia Environment on Sustainability Assessment of Energy Systems”. First Electronic International Conference on Engineering Education, Copenhagen, Denmark, July-August 2001.
61. Afgan, N. H., Carvalho, M.G., Martins, N. and Nogueira, M.- “A Concept of Prognostic and Diagnostic System for Monitoring of Gas Turbine Combustion Chambers”. RADIATIVE TRANSFER 2001 – The Third International Symposium on Radiative Transfer, Antalya, Turkey, 17-22 June 2001.
62. Pitarma, R. A., Ramos, J. E. and Carvalho, M.G., - “Occupational Health - Thermal Confort”. BioEng'2001 - Sixth Portuguese Conference on Biomedical Engineering, Faro, Portugal, 11-12 June 2001.
63. Garcia, J., Coelho, L. M. R., Simão, C. and Carvalho, M.G., - “Study of the Impact of Urban Air Quality on Human Health Based in a Children Population – Proposal for a Model”. Seventh International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, Belgirate, Italy, 28-31 May 2001.
64. Afgan, N. and Carvalho, M.G. - “Sustainable Development in South East Europe”. International Conference of Experts “Reconstruction of Scientific Cooperation in South East Europe”, Venice, Italy, 24-27 March 2001. Proceedings pp. 157-161.
65. Duic, N. and Carvalho, M.G. - “Experiences and Plans of Portugal in Development Energy Markets”. FORUM 2000, 9<sup>th</sup> Forum – Energy Day in Croatia – Restructuring, privatisation and market changes of energy systems, Zagreb, Croatia, 8 December 2000. Proceedings of the HED, pp. 177-189.
66. Xu, M., Azevedo, J. L. T., He, X. and Carvalho, M.G. - “A Novel Model for Predicting Radiative Heat Transfer, Slagging and Fouling in Pulverized Coal Fired Boilers”. Poster Session 4-EO5, 28<sup>th</sup>

- International Symposium on Combustion, University of Edinburg, United Kingdom, 30 July – 4 August 2000.
67. Rebola, A., Costa, M. and Carvalho, M.G. - "Strategies for the Simultaneous Reduction of Nox and Particulate Emissions from Heavy Fuel Oil Fired Furnaces". Poster session 4-A231 28<sup>th</sup> International Symposium on Combustion, University of Edinburg, United Kingdom, 30 July - 4 August 2000.
  68. Pitarma, R.A., Ramos, J.A.E. and Carvalho, M.G. – "Influência da Radiação Solar no Transporte Frigorífico Rodoviário de Longa Distância". IX Congresso Ibérico de Energia Solar, Cordova, Spain, 27-29 March 2000.
  69. Martins, A., Barreiros, A. Pimenta, C., Carvalho, M.G. and Fernandes, M. – "Key Points for Emissions Trading Strategies for South Europe – Policy Question". Working Party on Climate Change - Informal Workshop of the Portuguese Presidency, Sintra, Portugal, 7-8 February 2000.
  70. Duic, N., Costa, A., Alves, L.M. and Carvalho, M.G. - "Facilitating the Acceptance of Kyoto Protocol Objectives by Promoting the Technology Transfer to Developing Countries". Working Party on Climate Change - Informal Workshop of the Portuguese Presidency, Sintra, Portugal, 7-8 February 2000.
  71. Alves, L.M. and Carvalho, M.G. - "An Integrated Model for the Sustainable Development in South Europe Cities". European Meeting City of Tomorrow, Strasbourg, France, 9-10 December 1999, Proceedings, Session 1-C-2.
  72. Martins, N., Afgan, N., Carvalho, M.G. and Nogueira, M. - "Heat Flux - A Design, Diagnostic and Control Parameter for Thermal Equipment". IMECE99 - ASME International Mechanical Engineering Congress and Exhibition, Nashville, USA, 14-19 November 1999.
  73. Ramos, J.E., Pitarma, R.A. and Carvalho, M.G. - "Modelação Matemática de Espaços Climatizados". V Ibero and Inter-American Air Conditioning and Refrigeration Congress, CIAR'99, APIRAC, Lisbon, Portugal, 14-16 October 1999.
  74. Brasil, A., Farias, T.L. and Carvalho, M.G. - "Morphological and Optical Properties of Aerosols undergoing Restructuring". AAAR'99, Tacoma, Washington, USA, 11-15 October 1999. Abstracts, pp. 277.
  75. Carvalho, M.G., Ramos, J.E. and Pitarma, R.A. - "Characterisation of Natural Convection in a Room Communicating with the Outside Environment through a Door". PLEA 1999, the 16th International Conference on Passive and Low Energy Architecture, Brisbane, Australia, 22-24 September 1999, Proceedings PLEA'99 (Ed. Steven V. Szokolay), Vol. I, pp. 477-482.
  76. Alves, L.M., Costa, A. and Carvalho, M.G. - "Analysis of Potential for Market Penetration of Renewable Energy Technologies in Peripheral Islands". 1st Congresso Luso-Moçambicano de Engenharia, Maputo, Mozambique, 14-16 September 1999, Proceedings CLME'99 (Ed. J.F. Silva Gomes, António Matos, Clito Afonso), Vol. II, E.-65-70.
  77. Lu, P.S., Ye, T.H., Costa, M., Semião, V. and Carvalho, M.G. - "Predictions with a Second Moment Closure Turbulence Model and Experiments of Combined Combustion of Pulverized Coal and Propane in a Semi-Industrial Combustor". 4th International Symposium on Coal Combustion". Beijing, China, 18-21 August 1999, Proceedings (Ed. Xu-Chang Xu, Hai-Ying Qi, Bao-Guo Fan), pp. 356-363.
  78. Coelho, L.M.R., Carvalho, M.G., Pasini, S., Antifora, A., Schnell, U. and Hesselmann, G. - "Numerical Modelling Applied to the Design of a Coal-over-Coal Reburn Process at Vado Ligure Unit No. 4 (320 MWe)". 4th International Symposium on Coal Combustion. Beijing, China, 18-21 August 1999, Proceedings (Ed. Xu-Chang Xu, Hai-Ying Qi, Bao-Guo Fan), pp. pp. 335-351.
  79. Alves, L.M. and Carvalho, M.G. – "European Innovative New and Renewable Energy Technologies in African Islands and Remote Regions". African Regional Workshop on Transfer of Technology, Arusha, Tanzania, 16-18 August 1999.
  80. Novo, P., Coelho, P.J. and Carvalho, M.G. - "On the Parallelization of Radiative Heat Transfer Methods". EPMESC V11 International Conference on Promotion and Enhancement of Computational Methods in Engineering and Science, Macau, 2-5 August 1999.
  81. Azevedo, J.L.T., Costa, M., Semião, V. and Carvalho, M.G. - "On the Combined Combustion of Solid Wastes and Propane in a Laboratory Furnace". Poster Session Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
  82. Lu, P., Semião, V. and Carvalho, M.G. - "Numerical Prediction of a Swirling Turbulent Reaction Flow with a Reynolds Stress Transport Model". Poster Session Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
  83. Cunha, J., Pinheiro, S. and Azevedo, J.L.T. - "Modelling Compact Reformers for Fuel Cell Applications". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.

84. Nogueira, M. and Carvalho, M.G. - "Development of an Expert System for Energy Efficiency and Pollution Abatement for Industrial Glass Melting Furnaces". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
85. He, X., Xu, M., Azevedo, J.L.T. and Carvalho, M.G. - "Application of CFD Based Model Results using On-line Data from Boilers". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
86. Azevedo, J.L.T., Carvalho, M.G., Hesselman, G., Macphail, J., Roberts, P.A. and van de Kamp, W.L. - "Performance Prediction in Advanced Pulverised Coal Fired Utility Boilers—Main Project Conclusions". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
87. Brasil, A., Farias, T.L. and Carvalho, M.G. - "Morphological Properties of Aggregates Undergoing Restructuring". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999, Proceedings, Vol. II, pp. 1175-1183.
88. Afgan, N. and Carvalho, M.G. - "Low NO<sub>x</sub> Combustion Chamber for Internal Combustion Engines". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999, pp. 547-550.
89. Coelho, L., Azevedo, J.L.T. and Carvalho, M.G. - "Comparison of NO<sub>x</sub> Reduction Technologies for a Front Wall Fired Boiler". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
90. Silva, P., Costa, M., Semião, V. and Carvalho, M.G. - "Pollutant Characteristics of the Co-combustion of Plastics and Biomass in Boilers". Fifth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 12-15 July 1999.
91. Viegas, J.C., Carvalho, M.G. and Saraiva, J. - "Study of Natural Ventilation of Enclosed Fires: Tests and Simulations". INTERFLAM'99 - 8th. International Fire Science & Engineering Conference, Edinburgh, United Kingdom, 29 June - 1 July 1999, Proceedings (Ed. InterScience Communications), Vol. 1, pp. 579-591.
92. Carvalho, M.G., Speranskaia, N., Pipio, A. and Nogueira, M. - "Production Intensification in Glass-melting - Application of Design Optimisation Methodologies". 5th ESG Conference Glass Science and Technology for the 21st Century, Prague, Czech Republic, 21-24 June 1999.
93. Carvalho, M.G., Costa, M. and Nogueira, M. - "Emissions and Energy Saving in the Glass Industry". Glass, Art & Science, International Exhibition and Conference, Lisbon, Portugal, 14-18 June 1999.
94. Neves, M., Gimenez, A. and Carvalho, M.G. - "Development of Advanced Control Methodologies using Reliable Multidetector Sensors for Boilers". POWER-GEN'99, Frankfurt, Germany, 1-3 June 1999.
95. Carvalho, M.G. - "Model-based Control in Process Industry". PRES'99 - 2nd Conference "Process Integration, Modelling and Optimization for Energy Saving and Pollution Reduction", Budapest, Hungary, 3 May-2 June 1999.
96. Carvalho, M.G. - "An Integrated Model for the Sustainable Development in South European Cities " Développement Soutenable du Milieu Urbain, European Parliament, Brussels, Belgium, 27 May 1999, Proceedings, pp. 145-147.
97. Viegas, J.C., Carvalho, M.G. and Saraiva, J. - "Enclosed Fires: Experimental Research and Validation of a Computer Code". 9th International Conference CMEM 99 Computational Methods and Experimental Measurements, Sorrento, Italy, 27-29 April 1999.
98. Afgan, N. and Carvalho, M.G. - "Sustainable Energy Development: The Need of Modern Society". ICERD - International Conference on Energy Research & Development, Safat, Kuwait, 9-11 November 1998.
99. Carvalho, M.G. and Afgan, N. - "Control, Design and Operation Optimization of Industrial Combustion Equipment Based on Computer Simulation". ICERD - International Conference on Energy Research & Development, Safat, Kuwait, 9-11 November 1998.
100. Perez dos Santos, P.R., Marques da Silva, F., Gil Saraiva, J.A., Viegas, J.C. and Carvalho, M.G. - "Fluxo de Renovação de Ar em Edifícios". 8º Congresso Chileno de Engenharia Mecânica, Concepcion, Chile, 27-30 October 1998.
101. Afgan, N.H. and Carvalho, M.G. - "Expert Systems in Thermal Engineering". International Conference on Advancement in Mechanical Engineering, Sarajevo, Yugoslavia, 8-9 October 1998.
102. Viegas, J.C., Carvalho, M.G. and Saraiva, J. - "Grid Refinement and Parallel Calculation in Flows Induced by Fires in Compartments". International Conference on Applied Mathematics for Industrial Flow Problems (AMIF). San Feliu de Guixols, Spain, 1-3 October 1998.

103. Semião, V. and Carvalho, M.G. - "First Level Energetic and Environmental Optimisation of Industrial Processes using the ECLIPSE Code". 13th International Congress of Chemical and Process Engineering CHISA'98, Prague, Czech Republic, 23-28 August 1998.
104. Coelho, P.J., Carvalho, M.G. and Trivic, D.N. - "Radiative Heat Transfer in a Square Partitioned Enclosure". 11th International Heat Transfer Conference, Kyongju, Korea, 23-28 August 1998, Proceedings (Ed. J.S. Lee), Vol. 7, pp. 367-372.
105. Afgan, N., He, X.-G., Carvalho, M.G. and Azevedo, J.L.T. - "Slagging Assessment of Power Plant Boiler with Knowledge Based System". 11th International Heat Transfer Conference, Kyongju, Korea, 23-28 August 1998, Proceedings (Ed. J.S. Lee), Vol. 5, pp. 3-8.
106. Martins, N., Carvalho, M.G., Afgan, N. and Leontiev, A.I. - "Radiation and Convection Heat Flux Measurement". 11th International Heat Transfer Conference, Kyongju, Korea, 23-28 August 1998, Proceedings (Ed. J.S. Lee), Vol. 4, pp. 39-45.
107. Rosner, D.E., Farias, T.L., Brasil, A. and Carvalho, M.G. - "Soot Morphology- and High Pressure Effects on Thermophoretically-dominated Deposition Rates". 27th International Symposium on Combustion, University of Colorado, Boulder, U.S.A., 2-7 August 1998, Abstracts, W5G11, pp. 541.
108. Mourão, M., Costa, M. and Carvalho, M.G. - "Relationship between Spectral Radiation Intensities and NO<sub>x</sub> Emissions in a Large-scale Gas-fired Furnace". 27th International Symposium on Combustion, University of Colorado, Boulder, U.S.A., 2-7 August 1998, Abstracts, W1G09, pp. 113.
109. Azevedo, J., Costa, M., Semião, V. and Carvalho, M.G. - "Experimental Investigation on the Combined Combustion of Textile Wastes and Propane in a Large-scale Laboratory Furnace". 27th International Symposium on Combustion, University of Colorado, Boulder, U.S.A., 2-7 August 1998, Abstracts, W1G29, pp. 133.
110. Carvalho, M.G., Pipio, A. and Nogueira, M. - "A Success Story in Glass Industry: Application of Model-based Optimisation Systems". European Conference on Industrial Energy Efficiency "Success Stories", Vienna, Austria, 8-10 July 1998.
111. Wang, J. and Carvalho, M.G. - "Model-based Study of Sand Grain Dissolution in Industrial Glass Furnaces". 18th International Congress on Glass, S. Francisco (CA), U.S.A., 5-10 July 1998, Proceedings (Ed. Manoj K. Choudhary, Norman T. Huff, Charles H. Drummond III), B5, pp. 36-41.
112. Wang, J., Carvalho, M.G. and Nogueira, M. - "An Integrated Methodology for Glass Furnace Design". 18th International Congress on Glass, S. Francisco (CA), U.S.A., 5-10 July 1998, Proceedings (Ed. Manoj K. Choudhary, Norman T. Huff, Charles H. Drummond III), B4, pp. 23-28.
113. Brasil, A.M., Farias, T.L. and Carvalho, M.G. - "Microstructural Features and Properties of Aerosol-derived Granular Deposits/coatings". AAAR'98, Cincinnati (OH), USA, 22-26 June 1998.
114. Martins, N., Carvalho, M.G., Afgan, N. and Leontiev, A.I. - "Radiation and Convection Heat Flux Sensor for High Temperature Gas Environment". ASME Turbo Expo Land, Sea & Air '98, 98-GT-224, Stockholm, Sweden, 2-5 June 1998, Proceedings, pp. 1-5.
115. Viegas, J.C., Carvalho, M.G. and Saraiva, J. - "Flow Induced by Fire in Compartments: Test and Simulation". EURO THERM Seminar No. 56, Heat Transfer in Radiating and Combusting Systems - 3, Athens, Greece, 1-3 April 1998, Proceedings, pp. 182-185.
116. Coelho, P. and Carvalho, M.G. - "Parallel Calculation of Radiative Heat Transfer in a Utility Boiler". EURO THERM Seminar No. 56, Heat Transfer in Radiating and Combusting Systems - 3, Athens, Greece, 1-3 April 1998, Proceedings, pp. 132-143.
117. Afgan, N., Martins, N. and Carvalho, M.G. - "Heat Flux - A Design and Diagnostic Parameter for Thermal Equipment". EURO THERM Seminar No. 56, Heat Transfer in Radiating and Combusting Systems - 3, Athens, Greece, 1-3 April 1998, Proceedings, pp. 112-129.
118. Brasil, A.M., Farias, T.L., Carvalho, M.G. and Rosner, D.E. - "Numerical Characterization of the Morphology of Fractal-like Aggregates". AAAR'97, Denver (CO), USA, 13-17 October 1997.
119. Radovanovic, P.M., Afgan, N.H. and Carvalho, M.G. - "On-line Monitoring System for Utility Boiler Diagnostics". International Symposium on Utilization of Coal for Energy, Ohrid, Yugoslavia, 9-11 October 1997.
120. Afgan, N. and Carvalho, M.G. - "Prototype Expert System for Fouling Assessment in Desalination Plant Evaporator". Poster presented at the IDA (International Desalination Association) Conference, Madrid, Spain, 6-9 October 1997. Proceedings of IDA World Congress on Desalination and Water Reuse, Volume III, pp. 19-33.
121. Nogueira, M., Carvalho, M.G. and Wang, J. - "Industrial Utilization of Mathematical Modelling for Optimization of Glass Furnace Design and Operation". Poster presented at the Fifth International Conference on the Advances in Fusion and Processing of Glass, Toronto, Canada, 23-27 July 1997.

122. Coelho, L.M.R., Azevedo, J. L. T. and Carvalho, M.G. - "Application of a Global NO<sub>x</sub> Formation Model to a Pulverised Coal Fired Boiler with Gas Reburning". Fourth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 7-10 July 1997.
123. Afgan, N., He, X.-G., Carvalho, M.G. and Azevedo, J. L. T. - "Prototype of Knowledge-based System for Fouling Assessment of Sines Power Plant". Fourth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 7-10 July 1997.
124. Semião, V., Yuan, J. and Carvalho, M.G. - "Modelling and Validation of Particulate Formation in Oil-Fired Industrial Furnaces". Fourth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 7-10 July 1997, Proceedings, Vol. II, pp. 143-150.
125. Carvalho, M.G., Wang, J. and Nogueira, M. - "Physically-based Numerical Tool for the Study of Cleaner Combustion in Glass Melting Furnaces". Fourth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 7-10 July 1997, Proceedings, Vol. II, pp. 13-20.
126. Roberts, P.A., Carvalho, M.G., van de Kamp, W.L. and Macphail, J. - "Progress in the E.C. Co-funded Programme on Performance Prediction in Advanced Coal Fired Boilers". Fourth International Conference on Technologies and Combustion for a Clean Environment, Lisbon, Portugal, 7-10 July 1997, Proceedings, Vol. I, pp.19-23.
127. Carvalho, M.G., Nogueira, M. and Jian, W. - "Numerical Simulation of Thermal Phenomena and Particulate Emissions in an Industrial Glass Melting Furnace". Fundamentals of Glass Science and Technology, Växjö, Sweden, 9-12 June 1997.
128. Ramos, J.A.E. and Carvalho, M.G. - "Saúde e Conforto em Salas Ventiladas com Escoamento "Displacement"". VIII Congresso Ibérico de Energia Solar, Oporto, Portugal, 26-28 May 1997. Published in "Energia Solar e Qualidade de Vida", of International Solar Energy Society, edited by E. de Oliveira Fernandes, Eduardo Maldonado, Manuela Guedes de Almeida, pp. 229-234.
129. Mourão, M., Costa, M. and Carvalho, M.G. - "On NO<sub>x</sub> Emissions from a Gas Fired Furnace". 4th European Conference on Industrial Furnaces and Boilers, INFUB, Espinho, Portugal, 1-4 April 1997.
130. Brasil, A.M., Farias, T.L., Carvalho, M.G. and Rosner, D.E. - Numerical Characterization of Fractal-like Soot Deposits". AAAR (The American Association for Aerosol Research) 1996 Annual Conference, Orlando (FL), USA, 14-18 October 1996. Abstracts, pp. 247.
131. Farias, T.L., Carvalho, M.G., Köylü, Ü.Ö. and Rosner, D.E. - "Light Scattering Analysis of Inorganic Oxide Aggregates Undergoing Restructuring in Flames". AAAR (The American Association for Aerosol Research) 1996 Annual Conference, Orlando (FL), USA, 14-18 October 1996. Abstracts, pp. 65.
132. Nogueira, M. and Carvalho, M.G. - "Modelling Tools for Combustion Chambers Optimization". STRUCOME 96, Centre International de l'Automobile, Pantin, France, 2-3 October 1996.
133. Coelho, P.J., Duic, N. and Carvalho, M.G. - "Application of a Domain Decomposition Technique to the Mathematical Modelling of a Solid Fuel Combustion Chamber of a Ramjet". 20th ICAS Congress, Sorrento, Italy, 8-13 September 1996, 2.9.2, pp. 2000-2007.
134. Carvalho, M.G., Nogueira, M., Jian, W., Ferlin, T. and Malvos, H. - "Modelling Tools for Combustion Chamber Optimization — Application for Reduced Particle Emissions in a Glass Furnace". Symposium on Glass Problems, Istanbul'96, Istanbul, Turkey, 4-6 September 1996.
135. Novo, P., Coelho, P. and Carvalho, M.G. - "Parallelization of the Discrete Transfer Method: Two Different Approaches". Proceedings of the 31st National Heat Transfer Conference, Houston (TX), USA, 3-6 August 1996. Published in *Solution Methods for Radiative Heat Transfer in Participating Media*, ASME, HTD-Vol. 324, 1996, pp. 45-54.
136. Martins, N., Carvalho, M.G., Afgan, N.H. and Leontiev, A.I. - "A New Radiation and Convection Heat Flux Sensor for High Temperature Environments". Work-in-progress Poster Session Twenty-Sixth International Symposium on Combustion, Naples, Italy, 28 July-2 August 1996.
137. Ruão, M., Costa, M. and Carvalho, M.G. - "The Development of a NO<sub>x</sub> Diagnostic System Based on a Spectral Ultraviolet/Visible Imaging Device". Work-in-progress Poster Session Twenty-Sixth International Symposium on Combustion, Naples, Italy, 28 July-2 August 1996.
138. Ruão, M., Costa, M. and Carvalho, M.G. - "The Influence of Flue-gas Recirculation on Prompt and Thermal NO Formation in a Small-scale Furnace". Work-in-progress Poster Session Twenty-Sixth International Symposium on Combustion, Naples, Italy, 28 July-2 August 1996.
139. Köylü, Ü.O., Farias, T.L., Carvalho, M.G. and Rosner, D.E. - "Radiation Heat Transfer in Soot-containing Combustion Systems with Aggregation". Work-in-Progress Poster Session Twenty-Sixth International Symposium on Combustion, Naples, Italy, 28 July-2 August 1996.
140. Martins, N., Carvalho, M.G., Afgan, N.H. and Leontiev, A.I. - "A New Thermal Radiation Heat Flux Instrument using a Porous Disc as Sensing Element". International Conference on Porous Media and

- its Applications in Science, Engineering and Industry - Engineering Foundation Conferences, Kona, Hawaii, USA, 16-21 June 1996.
141. Farias, T.L., Carvalho, M.G., Köylü, Ü.Ö. and Faeth, G.M. - "Computational Study of the Structure of Soot Aggregates". Joint Meeting of the Portuguese, British, Spanish and Swedish Sections of the Combustion Institute, Funchal, Madeira Island, Portugal, 1-4 April 1996. Proceedings pp. 21.3.1 - 21.3.4.
  142. Coelho, P.J., Lemos, C., Carvalho, M.G. and Duic, N. - "Modeling of a Solid Fuel Combustion Chamber of a Ramjet using a Multi-Block Domain Decomposition Technique". 34th Aerospace Sciences Meeting and Exhibit, Reno (NV), USA, 15-18 January 1996. Paper AIAA 96-0847, pp. 1-11.
  143. Afgan, N.H., Carvalho, M.G., Al-Najem, N. and Darwish, M.A. - "Expert System for Fouling Assessment of Desalination Plant Heat Exchanger". IDA World Congress on Desalination and Water Sciences, Abu Dhabi, U.A.E., 18-24 November 1995. Proceedings, Vol. III, pp. 247-259.
  144. Carvalho, M.G. and Nogueira, M. - "Evaluation of the Use of Oxy-fuel Firing Technologies on the Melting Glass Quality and Furnace Efficiency". 56th Annual Conference on Glass Problems GLASS 95, University of Illinois in Urbana-Champaign, USA, 23-25 October 1995.
  145. Farias, T.L., Köylü, Ü.Ö. and Carvalho, M.G. - "A Computational Study of the Radiative Properties of Polydisperse Soot Populations". The Fall Meeting of the Eastern States Section of the Combustion Institute, Worcester (MA), USA, 16-18 October 1995.
  146. Carvalho, M.G., Nogueira, M., Wang, J. and Xeira, A.P. - "Modelling Tools for the Development of More Efficient and Cleaner Furnace Technologies". XVII International Congress on Glass, Beijing, China, 9-14 October 1995. Proceedings Vol. 7, pp. 271-276.
  147. Carvalho, M.G., Nogueira, M. and Wang, J. - "Mathematical Modelling of the Glass Melting Industrial Process". XVII International Congress on Glass, Beijing, China, 9-14 October 1995. Proceedings, Vol. 6, pp. 69-74.
  148. Coelho, L.R., Azevedo, J.L.T. and Carvalho, M.G. - "Numerical Simulation and Comparison of NO<sub>x</sub> Emissions from a Low NO<sub>x</sub> Front Wall Fired Boiler for Different Operating Conditions". 3rd International Symposium on Coal Combustion (3rd. ISCC), Beijing, China, 18-21 September 1995.
  149. Farias, T.L., Carvalho, M.G., Köylü, Ü.Ö. and Faeth, G.M. - "The Range of Validity of the Rayleigh-Debye-Gans/Fractal-Aggregate Theory for Computing the Optical Properties of Soot". International Symposium on Radiative Heat Transfer, Kusadasi, Turkey, 14-18 August 1995.
  150. Coelho, P.J., Gonçalves, J.M. and Carvalho, M.G. - "A Comparative Study of Radiation Models for Coupled Fluid Flow/Heat Transfer Problems". 9th International Conference on Numerical Methods in Thermal Problems, Atlanta, USA, 17-21 July 1995. Published in *Numerical Methods in Thermal Problems*, ed. R. Lewis and P. Durbetaki, Pineridge Press, Vol. IX, Part 1, 1995, pp. 378-389.
  151. Afgan, N.H., Carvalho, M.G., Coelho, P.J., Radovanovic, P. and Radanovic, Lj. - "Expert System for Boiler Fouling Assessment". Engineering Foundation Conference on Fouling Mitigation of Industrial Heat-Exchangers Conference, The Cliff at Shell Beach San Luis Obispo, California, USA, 18-23 June 1995.
  152. Afgan, N. and Carvalho, M.G. - "Expert System for Fouling Assessment of Industrial Heat Exchanger". Engineering Foundation Conference on Fouling Mitigation of Industrial Heat-Exchangers Conference, The Cliff at Shell Beach San Luis Obispo (CA), USA, 18-23 June 1995. Published in *Fouling Mitigation of Industrial Exchange Equipment*, ed. C.B. Panchal, T.R. Bott, E.F.C. Somerscales, S. Toyama, Begell House, 1997, pp. 113-130.
  153. Carvalho, M.G. and Nogueira, M. - "Physically Based Modelling of an Industrial Glass-Melting End-Port Furnace". 4th Int. Conf. Advances in Fusion and Processing of Glass, Würzburg, Germany, 22-24 May 1995.
  154. Coelho, P.J., Azevedo, J.L. and Carvalho, M.G. - "The Mathematical Modelling of Utility Boilers, Part II: The Research carried out at I.S.T.". 3rd European Conference on Industrial Furnaces and Boilers, INFUB, Lisbon, Portugal, 18-21 April 1995.
  155. Afgan, N. and Carvalho, M.G. - "Expert System Diagnostic in Power Plant Boiler". First Russian Heat Transfer Conference, Moscow, Russia, 21-25 November 1994.
  156. Coelho, P.J., Meunier, P. and Carvalho, M.G. - "Diagnosis of Combustion and Heat Transfer Phenomena in a Utility Boiler". 1994 ASME Winter Annual Meeting, Symposium on Fire and Combustion, Chicago, USA, 6-11 November 1994. In *Fire, Combustion and Hazardous Waste Processing*, ASME, HTD-Vol. 296, 1994, pp. 119-126.
  157. Köylü, Ü.Ö., Faeth, G.M., Farias, T.L. and Carvalho, M.G. - "Computational Evaluation of an Approximate Theory for the Optical Properties of Soot". Annual Conference on Fire Research, Gaithersburg Hilton Hotel, Maryland, USA, 17-20 October 1994.

158. Dinho, P., Coelho, L.R., Azevedo, J. and Carvalho, M.G. - "Modelling Radiative Properties in Pulverised Coal Combustion". 37th Eurotherm Seminar, Heat Transfer in Radiating and Combusting Systems - 2, Saluggia, Italy, 5-7 October 1994.
159. Farias, T.L., Carvalho, M.G., Köylü, Ü.Ö and Faeth, G.M. - "Scattering Properties of Polydisperse Soot Aggregates". 37th Eurotherm Seminar, Heat Transfer in Radiating and Combusting Systems - 2, Saluggia, Italy, 5-7 October 1994, Proceedings pp. 59-67.
160. Carvalho, M.G. and Nogueira, M. - "Model-Based Analysis of the Performance of Oxy-Fuel Furnaces". Combustion 94, Miskola, Hungary, 27-29 September 1994.
161. Carvalho, M.G., Nogueira, M. and Wang, J. - "Mathematical Modelling of a Glass Furnace". CROCUS Combustion Related Organizations - Common and Unified Symposium, Salsomaggiore Terme, Italy, 20-23 September 1994, Proceedings VI-15.
162. Carvalho, M.G., Costa, M. and Meunier, P. - "On Scaling of NO<sub>x</sub> Emissions from Turbulent Propane Jet Diffusion Flames". CROCUS Combustion Related Organizations - Common and Unified Symposium, Salsomaggiore Terme, Italy, 20-23 September 1994, Proceedings III-12.
163. Azevedo, J.L.T., Coelho, L.M.R. and Carvalho, M.G. - "Numerical Simulation of a Pulverised Coal Fired Boiler Using Flue Gas Recirculation and Oxygen Injection". CROCUS Combustion Related Organizations - Common and Unified Symposium, Salsomaggiore Terme, Italy, 20-23 September 1994, Proceedings II-17.
164. Carvalho, M.G., Pitarma, R.A., Pereira, F.D. and Ramos, J.E. - "Dynamic Analysis of a Refrigerated Room". Ventilation 94 - 4th International Symposium on Ventilation for Contaminant Control, Stockholm, Sweden, 5-9 September 1994. In *Arbete Och Hälsa Vetenskaplig Skriftserie*, ed. A. Jansson, L. Olander, No. 18, 1994, pp. 545-550.
165. Afgan, N.H. and Carvalho, M.G. - "Heat Exchanger Fouling Assessment by Confluence Based Expert System". Open Forum Poster Session 10th International Heat Transfer Conference, Brighton, United Kingdom, 14-18 August 1994, Proceedings Vol.4, 9 HE-2, pp. 339-344.
166. Martins, N., Carvalho, M.G., Afgan, N. and Leontiev, A.I. - "A New Instrument for Radiation/Convection Heat Flux Measurements". Open Forum Poster Session 10th International Heat Transfer Conference, Brighton, United Kingdom, 14-18 August 1994.
167. Carvalho, M.G. and Nogueira, M. - "Modelling of Heat Transfer Process in Industrial Furnaces". International Symposium on Turbulence, Heat and Mass Transfer, Lisbon, Portugal, 9-12 August 1994.
168. Coelho, P.J. and Carvalho, M.G. - "Modelling of Soot Formation in Turbulent Diffusion Flames". Symposium on Fire and Combustion Systems, 6th AIAA/ASME Thermophysics and Heat Transfer Conference, Colorado Springs (CO), USA, 20-23 June 1994. In *Heat Transfer in Fires and Combustion Systems*, ASME, HTD-Vol. 272, 1994, pp. 29-39.
169. Carvalho, M.G. and Nogueira, M. - "Model-Based Study for Improved Oxy-Fuel Glass Furnace Conception". The 9th Conference on Glass, Hradec Králové, Czech Republic, 3-4 May 1994.
170. Carvalho, M.G., Pitarma, R.A., Pereira, F.D. and Ramos, J.E. - "Distributed Dynamic Modelling of a Refrigerated Room". 2nd European Congress on Economics and Management of Energy in Industry (ECEMEI), Estoril, Portugal, 5-9 April 1994.
171. Carvalho, M.G. - "Improvement of Energy Efficiency in Glass-Melting Furnaces, Cement Kilns and Baking Ovens". Conference on Rational Use of Energy in the Process Industries, Athens, Greece, 26-28 January 1994.
172. Carvalho, M.G. and Nogueira, M. - "Mathematical Modelling of High Temperature Industrial Furnaces". Invited Lecture at the 8th Topic Oriented Technical Meeting-TOTEM 8-High Temperature Combustion - High Air Preheat/Oxygen Enrichment. Organized by International Flame Research Foundation, British Gas and British Flame Research Committee, British Gas, Loughborough, United Kingdom, 9-11 November 1993.
173. Farias, T., Carvalho, M.G., Köylü, Ü.Ö. and Faeth, G.M. - "A Computational Study of the Absorption and Scattering Properties of Soot". Fall Technical Meeting, The Eastern States Section of the Combustion Institute, Princeton University, Princeton, New Jersey, USA, 25-27 October 1993, paper no. 87, pp. 394-397.
174. Coelho, P.J., Carvalho, M.G. and Elands, P.J. - "Mathematical Modelling of a Solid Fuel Combustion Chamber" - Advanced Study Institute on Unsteady Combustion, Espinho, Portugal, 6-17 September 1993, pp. 19.1-19.9.
175. Afgan, N., Carvalho, M.G., Radovanovic, P. and Bloch, A.G. - "Design Concept of Boiler Expert System". ICHMT International Symposium on Heat and Mass Transfer in Energy Systems and Environmental Effects, Cancun, Mexico, 22-25 August 1993.

176. Coelho, P.J., Carvalho, M.G. and Elands, P.J. - "Mathematical Modelling of a Solid Fuel Combustion Chamber". ICDEERS - 14th International Colloquium on the Dynamics of Explosions and Reactive Systems, Coimbra, Portugal, 1-6 August 1993. Preprints Volume 1, pp. C.11.5.1-C.11.5.9.
177. Saraiva, P.C., Azevedo, J.L.T. and Carvalho, M.G. - "Modelling the Flow, Combustion and Pollutants Emission in a Semi-Industrial CAFBC". 4th International Conference on Circulating Fluid Beds, Hidden Valley Conference Center and Mountain Resort, Somerset, Pennsylvania, USA, 1-5 August 1993, pp. 72-79.
178. Anterion, F., Carvalho, M.G., Khalil, M. and Nogueira, M. - "Use of Mathematical Modelling for the Study of Low Emissions Glass Melting Furnaces". Poster Session Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993.
179. Azevedo, J.L.T. and Carvalho, M.G. - "Study of the Influence of Flue Gas Recirculation in Modelling Pulverised Coal Combustion". Second International Conference on Combustion Technologies for a Clean Environment, Lisbon, Portugal, 19-22 July 1993.
180. Carvalho, M.G. and Nogueira, M. - "Modelling of the Glass Melting Process Through 3-D Physically-Based Procedures". 2nd International Conference of European Society of Glass Science and Technology, Venice, Italy, 21-24 June 1993. In *Fundamentals of Glass Science and Technology*, ed. Stazione Sperimentale del Vetro, Vol. 23, 1993, pp. 623-626.
181. Carvalho, M.G., Nogueira, M. and Silva, P. - "Regenerative Cycle Optimization Via Physically-Based Dynamic Modelling". 2nd International Conference of European Society of Glass Science and Technology, Venice, Italy, 21-24 June 1993. In *Fundamentals of Glass Science and Technology*, ed. Stazione Sperimentale del Vetro, Vol. 23, 1993, pp. 619-622.
182. Carvalho, M.G. and Nogueira, M. - "Comparison of Heat Transfer Characteristics of Oxy-Fuel and Air-Fuel Melting Furnaces". 2nd International Conference of European Society of Glass Science and Technology, Venice, Italy, 21-24 June 1993. In *Fundamentals of Glass Science and Technology*, ed. Stazione Sperimentale del Vetro, Vol. 23, 1993, pp. 51-56.
183. Coelho, P., Farias, T., Pereira, J.C.F. and Carvalho, M.G. - "Numerical Prediction of Turbulent Sooting Diffusion Flames". 81st Symposium on Fuels and Combustion Technology for Advanced Aircraft Engines - AGARD-PEP, Fiuggi, Italy, 10-14 May 1993, AGARD CP-536, Paper 8, pp. 8.1-8.15.
184. Saraiva, P., Azevedo, J.L.T. and Carvalho, M.G. - "Modelling Combustion, NO<sub>x</sub> Emissions and SO<sub>2</sub> Retention in a Circulating Fluidised Bed". Proceedings of the 12th International Conference on Fluidized Bed Combustion (ASME), La Jolla, San Diego, USA, 8-13 May 1993. Edited by L. Rubow and G. Commonwealth, Vol. 1, 1993, pp. 375-380.
185. Carvalho, M.G. and Coimbra, C. - "On the Development of a Numerical Code for Predicting Three-dimensional Pulverized Coal Flames". ENCIT 92 - IV Encontro Nacional de Ciências Térmicas - SIENT 92. I Simpósio de Engenharia Térmica. Rio de Janeiro, Brazil, 1-4 December 1992. Associação Brasileira de Ciências Mecânicas (Ed. L.F. Azevedo, S.L. Braga and C.V.M. Braga), pp. 73-76.
186. Coelho, P. and Carvalho, M.G.- "Heat Transfer in Power Station Boilers". American Society of Mechanical Engineers, 1992 Winter Annual Meeting, Anaheim (CA), USA, 8-13 November 1992. Published in *Thermodynamics and the Design, Analysis and Improvements of Energy Systems*. AES - Vol. 27 (Ed. R.F. Boehem), ASME, New York, pp. 365-372, 1992.
187. Carvalho, M.G. and Nogueira, M. - "Analysis of Furnace Performance through 3-D Physically Based Modelling". XVI International Congress on Glass, Madrid, Spain, 4-9 October 1992, pp. 273-278.
188. Pereira, J.C.F., Coelho, P., Rocha, J.M.P. and Carvalho, M.G. - "Prediction of Temperature and Brightness of a Free Turbulent Diffusion Flame". Symposium on Heat and Mass Transfer in Fire and Combustion Systems (K-11 Committee - Heat Transfer Division), ASME-AIChE 1992 National Heat Transfer Conference, San Diego (CA), USA., 9-12 August 1992. In *Heat Transfer in Fire and Combustion Systems*, HTD - Vol. 199, (Editors A.M. Kanury and M.Q. Brewster), 1992, pp. 45-52.
189. Carvalho, M.G. and Martins, N. - "Mathematical Modelling of Heat and Mass Transfer in a Forced Convection Baking Oven". Process Heat Transfer Session. ASME/AIChE 1992 National Heat Transfer Conference, San Diego (CA), USA, 9-12 August 1992. In *Heat Transfer - AIChE Symposium Series*, Vol. 88 (Ed. B.G. Volintine) 1992, pp. 205-211.
190. Azevedo, J.L.T., Carvalho, M.G., Chen, X.Q., Coimbra, C.F.M. and Pereira, J.C.F. - "Application of Stochastic Lagrangian Models to Dispersed Flows". 27th Meeting of the European Two-Phase Flow Group, The Royal Institute of Technology, Stockholm, Sweden, 1-3 June 1992.
191. Carvalho, M.G. and Nogueira, M. - "Dedicated Modelling as a Tool for Novel Solutions to Improve Energy Efficiency of Ceramic Furnaces". New Technologies for the Rational Use of Energy in the Ceramics Industry, Orléans, France, 20-21 May 1992.

192. Azevedo, J.L.T. and Carvalho, M.G. - "Modelling Combustion and Fuel- NO<sub>x</sub> in Pulverised Coal Flames". 6th Workshop on Two-Phase Flow Predictions, Erlangen, Germany, 30 March-2 April 1992.
193. Carvalho, M.G. and Nogueira, M. - "Glass Furnace Efficiency Evaluation Through Three-Dimensional Modelling". European Seminar on Improved Technologies for the Rational Use of Energy in the Glass Industry, Wiesbaden, Germany, 4-6 February 1992, pp. 403-420.
194. Carvalho, M.G., Pereira, J.F.C., Nogueira, M., Danzer, W. and Dias, J. - "Reduction of Combustion Generated Pollutants in Glass Furnaces — Application of Three-Dimensional and Numerical Modelling". Poster Session of 1st International Conference on Combustion Technologies for a Clean Environment, Vilamoura, Portugal, 3-6 September 1991.
195. Carvalho, M.G. and Nogueira, M. - "Evaluation of Glass Quality via Three-Dimensional Mathematical Modelling of Glass Melting Furnaces". Proceedings of the 1st Int. Conference on the Fundamentals of the Glass Manufacturing Process, pp. 169-177, Sheffield, United Kingdom, September 1991.
196. Carvalho, M.G., Farias, T. and Fontes, P. - "Predicting Radiative Heat Transfer in Absorbing, Emitting and Scattering Media using the Discrete Transfer Method". 27th National Heat Transfer Conference, Minneapolis, USA, 28-31 July 1991. Published in HTD - Vol. 160. *Fundamentals of Radiation Heat Transfer*, Ed. W.A. Fiveland, A.L. Crosbie, A.M. Smith, T.F. Smith, ASME 1991, pp. 17-26.
197. Carvalho, M.G., Coelho, P. and Costa, F. - "Mathematical Modelling of a Power Station Boiler of the Portuguese Electricity Utility" - 2nd European Conference on Industrial Furnaces and Boilers - INFUB, Vilamoura, Portugal, 2-5 April 1991, Vol. II.
198. Carvalho, M.G., Lopes, J.B. and Nogueira, M. - "Mathematical Modelling of Fluid Flow and Heat Transfer in a Glass Melting Furnace" - 2nd European Conference on Industrial Furnaces and Boilers - INFUB, Vilamoura, Portugal, 2-5 April 1991, Vol. I.
199. Barreiros, A. and Carvalho, M.G. - "The Prediction and Experimental Validation of a Laboratory Confined Spray Flame" - 3rd Brazilian Thermal Science Meeting, ENCIT - 90, Itapanema, Brazil, 10-12 December 1990.
200. Carvalho, M.G., and Nogueira, M. - "Evaluation of the Melting Performance of an End-Fired Furnace via Three-Dimensional Modelling". Proceedings of Int. Conference on Advances in the Fusion and Processing of Glass. Deutsche Glastechnische Gesellschaft, Dusseldorf, Germany, 22-25 October 1990, pp. 114-117.
201. Carvalho, M.G. - "Energy Saving and Pollution Abatement in Glass-Making Furnaces, Cement Kilns and Baking Ovens". European Seminar on Improved Energy Efficiency in Process Industries - Proceedings of European Seminar, Brussels, Belgium, 23-24 October 1990, Report EUR 13541 EN-FR, pp. 141-159.
202. Arantes, A., Carvalho, M.G., Fernandes, E.C. and Ventura, J.M.P. - "Mathematical Modelling and Experimental Validation of Growth of Fires in Compartments" - Eurotherm Seminar No. 13, Fire Modelling, Harwell, United Kingdom, 5-6 June 1990.
203. Carvalho, M.G., and Nogueira, M. - "Mathematical Modelling of Heat Transfer Phenomena in a Glass Melting Furnace" - S.F.T. 90 - Meeting Société Française de Thermiciens, Colloque Thermique, Nantes, France, 16-17 May 1990, pp. 53-57.
204. Carvalho, M.G., Lopes, J.B., Nogueira, M. and Vasconcelos, A.T. - "The Practical Application of Mathematical Modelling to Glass Melting" - ESPRIT CIM - EUROPE, 1990 Conference, Lisbon, Portugal, 15-17 May 1990.
205. Carvalho, M.G., Coelho, P. and Costa, F. - "A Comparative Study of the Performance of a Large Industrial Boiler for Fuel-Oil and Natural Gas Firing". 6th ESPRIT CIM - EUROPE, 1990 Conference, Lisbon, Portugal, 15-17 May 1990.
206. Arantes, A., Carvalho, M.G. and Pereira, J.C.F. - "A Three-Dimensional Mathematical Field Model for Large Fires in Buildings" - Eurotherm Seminar No. 14 - Heat Transfer and Major Technological Hazards, Louvain, Belgium, 15-17 May 1990, pp. 27.1-27.9.
207. Carvalho, M.G., Coelho, L. and Nogueira, M. - "A Zone Heat Transfer Model of Industrial Furnaces". Anais do X COBEM - Congresso Brasileiro de Engenharia Mecânica, Rio de Janeiro, Brazil, 5-8 December 1989. Edited by M.H. Hirata, J.L. Scieszko, R.M. Cotta, R.A. Tenenbaum and S.L.V. Coelho, pp. 329-332.
208. Carvalho, M.G., Durão, D.F.G., Heitor, M.V. and Sentieiro, J. - "AIMBURN - Advanced Intelligent Multi-Sensor System for Control of Boilers and Furnaces: An Overview of the Objectives". CIM Esprit Conference Week, Brussels, Belgium, 27 November/1 December 1989.
209. Barreiros, A., Carvalho, M.G., Freitas, M. and Pereira, J.C.F. - "Heat Transfer Model for Laser Surface Hardening Materials". Workshop on Mathematical Simulation of Laser Treatment of Materials, Instituto Superior Técnico, Lisbon, Portugal, 28-29 September 1989, pp. 61-72.

210. Carvalho, M.G., Ramos, J.E. and Pereira, F.D. - "Numerical Investigations of the Aerodynamics of a Refrigeration Chamber". Proceedings of 8th Colloquium on Industrial Aerodynamics, Aachen, Germany, 4-7 September 1989, pp. 175-188.
211. Oliveira, L.A., Costa, J.J. and Carvalho, M.G. - "Numerical Prediction of Aerodynamics Sealing by Jet Flows". Proceedings of 8th Colloquium on Industrial Aerodynamics, Aachen, Germany, 4-7 September 1989, pp. 163-173.
212. Carvalho, M.G. and Coelho, P. - "Prediction of the Flow and Heat Transfer Distribution in an Oil - Fired Water - Tube Boiler". Fourth Asian Congress of Fluid Mechanics, Hong Kong, 21-25 August 1989.
213. Carvalho, M.G., Semião, V., Lockwood, F.C. and Costa, M. - "The Prediction of SMD and Droplet Size Distribution for Different Atomisers". Proceedings of Int. Conf. on Mechanics of Two-Phase Flows, Taiwan, 12-15 June 1989, pp. 254-260.
214. Carvalho, M.G. and Fontes, P. - "Prediction Radiative Transfer in an Absorbing - Emitting Medium using the Discrete Transfer Model". Euromech Colloquium 249 - Plumes and Turbulent Jet Diffusion Flames in the Atmosphere, Madrid, Spain, 22-26 May 1989.
215. Carvalho, M.G. and Semião, V. - "Predictions of Two-phase Flow Properties of a Confined Spray Flame". European Two-phase Flow Group Meeting, Paris, France, June 1989.
216. Carvalho, M.G., Durão, D.F.G., Heitor, M.V., Moreira, A.L.N. and Pereira, J.C.F. - "The Flow and Heat Transfer in an Oxy-Fuel Glass Furnace". 1st European Conference on Industrial Furnaces and Boilers, Lisbon, Portugal, 21-24 March 1988.
217. Carvalho, M.G. and Coelho, P. - "Radiation Transfer in Gas Turbine Combustors". AGARD/PEP 70th Symposium on Combustion and Fuels in Gas Turbine Engines, AGARD-CP422, Paper No. 19, pp. 19.1-19.22., Creete, Greece, October 1987.
218. Carvalho, M.G. - "Radiation Heat Transfer in Gas Turbine Combustion Chambers". Invited Lecture at the NATO/ASI on "Instrumentation for Combustion and Flow in Engines", Paper No. P10, Vimeiro, Portugal, 14-25 September 1987.
219. Azevedo, J.L.T., Carvalho, M.G., Durão, D.F.G. and Moreira, A.L.N. - "Modelling of Fluidized Bed Combustors". International Specialists Meeting on Solid Fuel Utilization, Paper No. 4.2, Lisbon, Portugal, 6-9 July 1987, pp. 4.2.1-4.2.8.
220. Carvalho, M.G., Durão, D.F.G. and Pereira, J.C.F. - "Prediction of the Flow, Reaction and Heat Transfer in an Oxy-Fuel Glass Furnace". 3rd International Conference on Numerical Methods for Non-Linear Problems, Dubrovnik, Yugoslavia, September 1986.
221. Carvalho, M.G., Durão, D.F.G. and Semião, V. - "Simulação Numérica de uma Fornalha de Vidro". Primeiro Congresso Iberoamericano de Métodos Computacionales en Ingenieria, Madrid, Spain, 4-5 July 1985.
222. Carvalho, M.G., Durão, D.F.G. and Lockwood, F.C. - "Computation of Thermal Radiation for Gas Turbine Conditions". AGARD/PEP 65th Symposium, Conference Proceedings No. 390 - "Heat Transfer and Cooling in Gas Turbines", Paper No. 20, Bergen, Norway, 1985, pp. 20.1-20.7.
223. Carvalho, M.G., Durão, D.F.G. and Lockwood, F.C. - "Mathematical Simulation of an Industrial Glass Furnace". 1st European Congress on Economics and Management of Energy in Industry, (ECEMEI) Albufeira, Portugal, 1984.

#### **j) National Conferences and Symposia**

1. Carvalho, M.G. and Nogueira, M. A. – "Utilização de Modelos Matemáticos no Controlo e Supervisão de Processos Industriais de Combustão". VII Congresso de Mecânica Aplicada e Computacional, Évora, 14-16 April 2003.
2. Soares, F.S., Lemos, J.M.F. and Carvalho, M.G. - "A Declaração de Bolonha e os Perfis de Engenharia". XIV Congresso da Ordem dos Engenheiros, Coimbra, 27-29 June 2002.
3. Ramos, J.E., Pitarma, R.A. Martinho, N.A. and Carvalho, M.G. – "O Papel da Modelação Matemática na Optimização da Climatização de Edifícios". 1as Jornadas Politécnicas de Engenharia Mecânica Automóvel, Gestão Industrial e Ambiente, Leiria, 14-16 November 2001.
4. Carvalho, M.G. - "Energia e Desenvolvimento Sustentável". Ciclo de Conferências "Perspectivar o Futuro – Engenharia do Ambiente". Escola Superior de Tecnologia e Gestão, Instituto Politécnico de Leiria, Leiria, 25 October 2000.
5. Carvalho, M.G. - "O Papel da Cooperação Científica no Desenvolvimento Sustentável". XIII Congresso 2000 Engenharia e Cultura, Ordem dos Engenheiros, Oporto, 21-23 September 2000.

6. Viegas, J.C., Carvalho, M.G. and Saraiva, J. - "Incêndios em Edifícios. Validação de um Modelo de Campo para Previsão do Escoamento". VI Congresso Nacional de Mecânica Aplicada e Computacional, Universidade de Aveiro, 17-19 April 2000.
7. Alves, L.M., Pipio, A. and Carvalho, M.G. - "Fontes de Energia Novas e Renováveis em Ilhas e Regiões Remotas". II Jornadas Insulares de Engenharia, Funchal, Madeira, 20-22 May 1999.
8. Pitarma, R.A., Ramos, J.E. and Carvalho, M.G. - "Modelação Matemática de Câmaras Frigoríficas". Jornadas de Aplicações da Matemática. Instituto Superior de Engenharia de Lisboa, Lisbon, 14-16 October 1998, Proceedings, pp. 197-201.
9. Rebola, A., Azevedo, J., Silva, P., Pratas, M., Ruão, M., Mourão, M., Costa, M. and Carvalho, M.G. - "Projectos de I & D com a Indústria Portuguesa durante a Presente Década". Congresso'98, Ordem dos Engenheiros, Lisbon, 18-21 June 1998.
10. Afgan, N. and Carvalho, M.G. - "Cátedra UNESCO: Em Desenvolvimento Sustentável". Congresso'98, Ordem dos Engenheiros, Lisbon, 18-21 June 1998.
11. Coelho, L.M.R., Azevedo, J.L.T. and Carvalho, M.G. - "Técnicas de Redução de Emissões de NO<sub>x</sub> em Caldeiras de Carvão Pulverizado (Simulação Numérica)". Congresso'98, Ordem dos Engenheiros, Lisbon, 18-21 June 1998.
12. Coelho, P., Vieira, A., Carvalho, M.G. and Ferreira, M. - "Estudo Experimental e Numérico de uma Caldeira da Central Térmica de Setúbal", 1<sup>as</sup>. Jornadas Nacionais do Colégio de Engenharia Mecânica da Ordem dos Engenheiros, Oporto, 9-10 March 1998.
13. Ramos, J.A.E., Pitarma, R.A. and Carvalho, M.G. - "Modelação do Conforto Térmico em Salas Climatizadas". 1<sup>as</sup>. Jornadas Nacionais do Colégio de Engenharia Mecânica da Ordem dos Engenheiros, Oporto, 9-10 March 1998.
14. Coelho, P.J. and Carvalho, M.G. - "Modelação Matemática da Câmara de Combustão de um Sistema de Propulsão" - Ciclo de Conferências sobre Ciência e Tecnologia Aeroespacial para a Inovação no 42<sup>o</sup> Aniversário da Força Aérea, I.S.T., Lisbon, 27-30 June 1994, Proceedings, pp. 104-114.
15. Carvalho, M.G., Azevedo, J.L.T., Barreiros, A., Coelho, P., Martins, N. and Nogueira, M. - "Simulação Físico-matemática de Fornos e Caldeiras Industriais" - 3<sup>o</sup> Encontro Nacional de Mecânica Computacional, Coimbra, 28-30 September 1992, pp. F 12.1 - F. 12.12.
16. Ramos, J.A.E. and Carvalho, M.G. - "A Acumulação de Calor - Estratégias de Gestão". ENRAC - 3<sup>o</sup> Encontro Nacional de Refrigeração e Ar Condicionado, Hotel Penta, Lisbon, 28-30 January 1992.
17. Carvalho, M.G., Durão D.F.G. and Heitor, M.V. - "AIMBURN - Sistema Inteligente Multi-Sensor para o Controlo de Fornos e Caldeiras Industriais. Descrição dos Objectivos". Congresso da Ordem dos Engenheiros, Tema 3 - Produtividade e Gestão da Qualidade na Indústria e Metalomecânica. Coimbra, 9-13 October 1989.
18. Carvalho, M.G., Pereira, F.J.D. and Ramos, J.A.E. - "Modelação de Escoamentos em Geometrias Industriais Complexas". 2<sup>o</sup> Encontro Nacional de Refrigeração e Ar Condicionado, Lisbon, 6-8 June 1989.
19. Carvalho, M.G., Coelho, P. and Semião, V. - "Modelação Matemática, Física e Numérica de Câmaras de Combustão". 1<sup>o</sup> Encontro Nacional de Mecânica Computacional, Tróia, 27-30 March 1988, Vol. 2, pp. 191-214, 1989.
20. Carvalho, M.G. - "Simulação Computacional em Mecânica de Fluidos, Transmissão de Calor e Combustão". 1<sup>o</sup> Encontro Nacional de Mecânica Computacional, Tróia, 27-30 March 1988, Vol. 1, pp. 8.7-8.26, 1989.
21. Carvalho, M.G. and Semião, V. - "A Optimização do Funcionamento de Fornos de Vidro através da Simulação em Computador". Congresso da Ordem dos Engenheiros, Oporto, 18-22 January 1988.
22. Carvalho, M.G., Durão, D.F.G. and Semião, V. - "Simulação Numérica de um Forno de Vidro Industrial". Congresso da Ordem dos Engenheiros, Coimbra, 25-29 May 1985.

### **k) Invited Lectures in Seminars**

1. Title: Vantagens Económicas e Competitivas da Aplicação das MTD  
 In: Melhores Técnicas Disponíveis (MTD) no Regime de Prevenção e Controlo Integrados da Poluição (PCIP)  
 Venue: Instituto Superior Técnico, Lisbon, Portugal  
 Date: 19 January 2007

2. Title: Energia: Uma Visão para o Futuro  
In: A Investigação Científica na Universidade Técnica de Lisboa  
Venue: Instituto Superior Técnico, Lisbon, Portugal  
Date: 3 February 2006
3. Title: O Hidrogénio – Um Vector Energético na Casa do Futuro  
In: Ciclo de Workshops “A Energia na Casa do Futuro”  
Venue: University of Aveiro, Aveiro, Portugal  
Date: 20 January 2006
4. Title: A Universidade de Cabo Verde – Seu Papel no Desenvolvimento Social e Económico e na Criação de uma Capacidade em Ciência, Inovação e Tecnologia  
In: Ciclo de Conferência da Comissão Nacional para a Instalação da Universidade de Cabo Verde  
Co-authors: Luís Manuel Alves  
Venue: Instituto da Biblioteca Nacional e do Livro, Praia, Cabo Verde  
Date: 21 July 2005
5. Title: Novos Desafios no Espaço do Ensino e Investigação dos Países de Língua Portuguesa  
In: XV Encontro da AULP – Associação das Universidades de Língua Portuguesa  
Venue: UTL, Lisbon, Portugal  
Date: 22-25 May 2005
6. Title: O Processo de Bolonha  
In: Dia do Departamento, Ciências Naturais, Ambientais e Biotecnológicas  
Venue: Universidade Lusófona, Lisbon, Portugal  
Date: 20 May 2005
7. Title: Utilização do SIG na Avaliação e Utilização do Potencial de Energias Renováveis na Ilha do Santo Antão de Cabo Verde  
In: IX Encontro Nacional do Colégio de Engenharia Geográfica da Ordem dos Engenheiros  
Venue: Sesimbra, Portugal  
Date: 24 May 2003
8. Title: Engineers, Actors in a Competitive Economy  
In: International Seminar Increasing the Competitiveness of the Engineering Education and Profession in the European Union  
Venue: Leuven, Belgium  
Date: 11-12 April 2003
9. Title: Tecnologias de Combustão de Gás Natural  
In: Utilização do Gás Natural na Combustão e Respectivas Tecnologias  
Venue: Centro de Geologia, University of Porto, Oporto, Portugal  
Date: 13 February 2003
10. Title: Os Desafios Energéticos e Ambientais e o Desenvolvimento Sustentável  
In: Seminário Internacional Engenharia e Desenvolvimento Sustentável  
Co-authors: Luís Manuel Alves, Sérgio Teixeira Santos  
Venue: Maputo, Mozambique  
Date: 24 September 2002
11. Title: New and Renewable Energy Sources for Sustainable Communities  
In: VII Encontro Regional do Engenheiro  
Co-authors: Luís Manuel Alves, Anildo Costa e Neven Duic  
Venue: Angra do Heroísmo, Terceira, Azores  
Date: 20 July 2002
12. Title: Kyoto Protocol  
In: Conference on Sustainable Development of Energy, Water and Environment Systems (Round Table)  
Co-authors: Neven Duic and Luís Manuel Alves  
Venue: Dubrovnik, Croatia  
Date: 2-7 June 2002
13. Title: Energia – Passado, Presente e Futuro – Introdução ao Tema  
In: XV Jornadas de Engenharia Química  
Venue: Instituto Superior Técnico, Lisbon, Portugal  
Date: 7 May 2002
14. Title: Central Virtual a Pilha de Combustível Vaillant – Introdução ao Tema  
In: 6ª Conferência COGEN Portugal “A Cogeração Face às Novas Realidades”

- Co-authors João Toste de Azevedo and Gonçalo Gonçalves  
 Venue: Lisbon, Portugal  
 Date: 22 April 2002
15. Title: As Questões dos Países em Desenvolvimento no Contexto das Alterações Climáticas  
 In: Cumprindo os Objectivos do Protocolo de Quioto e Promovendo a Transferência de Tecnologia para Países Insulares em Desenvolvimento – Projecto CDMSIDS  
 Co-author Luís Manuel Alves  
 Venue: Sal, Cape Verde  
 Date: 1 March 2002
16. Title: End-Use Approach for GHG Reduction in SIDS – The Case of Santo Antão, Cape Verde  
 In: Cumprindo os Objectivos do Protocolo de Quioto e Promovendo a Transferência de Tecnologia para Países Insulares em Desenvolvimento – Projecto CDMSIDS  
 Co-authors Anildo Costa and Gonçalo Gonçalves  
 Venue: Sal, Cape Verde  
 Date: 1 March 2002
17. Title: The Potential for Clean Development Mechanism in Electricity Production  
 In: Cumprindo os Objectivos do Protocolo de Quioto e Promovendo a Transferência de Tecnologia para Países Insulares em Desenvolvimento – Projecto CDMSIDS  
 Co-authors Neven Duic, Luís Manuel Alves and Anildo Costa  
 Venue: Sal, Cape Verde  
 Date: 1 March 2002
18. Title: Facilitating the Kyoto Protocol Objectives by Clean Development Mechanism in Small Island Developing States – CDMSIDS Project  
 In: Cumprindo os Objectivos do Protocolo de Quioto e Promovendo a Transferência de Tecnologia para Países Insulares em Desenvolvimento – Projecto CDMSIDS  
 Venue: Sal, Cape Verde  
 Date: 1 March 2002
19. Title: Cooperação e Desenvolvimento  
 In: 3º Encontro de Engenheiros Lusófonos, Seminário “ A Cooperação no Âmbito da CPLP” e II Cimeira das Engenharias da CPLP.  
 Co-author Luís Manuel Alves  
 Venue: Praia, Cape Verde  
 Date: 8 October 2001
20. Title: O Ensino Superior no Sistema de Ciência e Tecnologia: Contribuição do Instituto Superior Técnico para a Cooperação Científica entre Portugal e Cabo Verde  
 In: III Jornadas de Ciência e Tecnologia  
 Co-author Luís Manuel Alves  
 Venue: Praia, Cape Verde  
 Date: 4-6 October 2001
21. Title: Qual o Papel das Energias Novas e Renováveis no Cumprimento dos Objectivos do Protocolo de Quioto e na Segurança do Abastecimento?  
 In: Total Energy 2001  
 Co-authors Anildo Costa and Patrícia Rei  
 Venue: Hotel Novotel, Lisbon, Portugal  
 Date: 24-27 September 2001
22. Title: As Questões dos Países em Desenvolvimento no Contexto das Alterações Climáticas  
 In: 1º Curso Lusófono sobre Gestão Ambiental, Painel "Convenção sobre Alterações Climáticas"  
 Co-author Luís Manuel Alves  
 Venue: Sesimbra, Portugal  
 Date: 10-14 September 2001
23. Title: Mecanismos Financeiros no Âmbito da União Europeia  
 In: 1º Curso Lusófono sobre Gestão Ambiental  
 Co-authors Luís Manuel Alves  
 Venue: Sesimbra, Portugal  
 Date: 10-14 September 2001
24. Title: The Clean Development Mechanism - A Framework for Co-Operation with Developing Countries  
 In: Workshop on Clean Development Mechanism  
 Co-authors Neven Duic and Luís Manuel Alves

- Venue: Edifício da Alfândega, Oporto, Portugal  
Date: 11 July 2001
25. Title: Implementação de Tecnologias Energéticas Eficientes  
In: Seminário APEMETA "Eficiência Energética e Energias Renováveis - Incentivos Financeiros"  
Co-authors: Luís Manuel Alves and Gonçalo Gonçalves  
Venue: INETI, Lisbon, Portugal  
Date: 29 June 2001
26. Title: O Planeamento Energético de Moçambique no Contexto das Alterações Climáticas  
In: Seminário SYNERGY  
Co-authors: Neven Duic and Luís Manuel Alves  
Venue: Maputo, Mozambique  
Date: 22 June 2001
27. Title: Quioto e a Cogeração  
In: 5ª Conferência COGEN Portugal "O Preço dos Combustíveis, Ameaça ou Oportunidade para a Cogeração?"  
Venue: Fundação Dr. António Cupertino de Miranda, Oporto, Portugal  
Date: 16-17 May 2001
28. Title: Novas Tecnologias Energéticas Limpas  
In: XIV Jornadas de Engenharia Química do Instituto Superior Técnico (IST)  
Venue: Centro de Congressos do IST, Lisbon, Portugal  
Date: 9-10 May 2001
29. Title: Gás Natural na Indústria Vidreira e Cerâmica  
In: Debate "Introdução do Gás Natural na Indústria Vidreira e Cerâmica"  
Venue: Escola Irmãos Stephens, Marinha Grande, Portugal  
Date: 8 May 2001
30. Title: Tecnologias Energéticas na Próxima Década  
In: Seminar "Energia, Portugal, Século XXI"  
Venue: Centro Cultural de Belém, Lisbon, Portugal  
Date: 1 March 2001
31. Title: FLOXCOM – Low-Nox Flox Combustor for High Efficiency Gas Turbines  
In: First Workshop – Cleaner and More Efficient Gas Turbines – A Thematic Network of the FPV Energie Programme  
Venue: Brussels, Belgium  
Date: 16 February 2001
32. Title: The Case of Santo Antão, Cape Verde  
In: Workshop Economia do Carbono: Identificar os Constrangimentos e Promover as Potencialidades para Portugal  
Co-authors: Neven Duic and Luis Manuel Alves  
Venue: Auditório do Welcome Centre, Lisbon, Portugal  
Date: 12-13 February 2001
33. Title: A Convenção sobre Alterações Climáticas e os Países em Desenvolvimento  
In: Seminar Alterações Climáticas: Resultados e Motivações da Conferência de Haia  
Co-author: Luís Manuel Alves  
Venue: Auditório da Direcção Geral do Ambiente, Lisbon, Portugal  
Date: 1 February 2001
34. Title: The Kyoto Protocol: Integrated Framework for Developing Countries – The Negotiations during the Portuguese Presidency  
In: CTI/IEA Seminar on Clean Development Mechanism Opportunities in Latin America for Spain and Portugal  
Venue: Madrid, Spain  
Date: 18 September 2000
35. Title: Tecnologias Energéticas e Renováveis em Ilhas e Regiões Remotas  
In: VI Dia Regional do Engenheiro nos Açores  
Co-authors: A. Costa, N. Duic and L. Alves  
Venue: Ponta Delgada, Azores, Portugal  
Date: 28 July 2000
36. Title: A Transacção de Direitos de Emissão  
In: 4ª Conferência COGEN Portugal, "A Cogeração Face a Novos Desafios"  
Co-authors: A. Martins, A. Barreiros, C. Pimenta, M. Fernandes and R. Santos

- Venue: Fundação Dr. António Cupertino de Miranda, Oporto, Portugal  
Date: 15-16 March 2000
37. Title: Resultados do Projecto FUEL BLENDS sobre a Queima com Combustíveis Auxiliares de Resíduos Industriais e Agrícolas (têxteis, plásticos, caroço de pêsego e casca de pinho) em Caldeira de Grelha de Biomassa e em Fornalha Semi-industrial - IST/PORTUCEL  
In: Forum Debate sobre Queima de Resíduos Industriais como Combustíveis Auxiliares  
Venue: CITEVE, Vila Nova de Famalicão, Portugal  
Date: 15 December 1998
38. Title: Estudo das Condições de Operação das Instalações de Cogeração com Motores Diesel  
In: 3rd Conference COGEN Portugal "A Liberalização do Sector Energético e as Perspectivas para a Cogeração"  
Co-authors: A. Rebola and M. Costa  
Venue: Tagus Park, Oeiras, Portugal  
Date: 3 December 1998
39. Title: Tecnologias Limpas e Novas Tecnologias Energéticas  
In: Energia e Tecnologia: Suportes do Desenvolvimento Sustentável no Próximo Milénio  
Venue: INETI, Lisbon, Portugal  
Date: 24-25 November 1998
40. Title: Co-utilisation of Fossil Fuels and Wastes  
In: Coal and Biomass: High-Tech Fuels for the Future  
Venue: Brussels, Belgium  
Date: 11-12 November 1998
41. Title: Full Boiler Performance Modelling  
In: Coal and Biomass: High-Tech Fuels for the Future  
Venue: Brussels, Belgium  
Date: 11-12 November 1998
42. Title: Sustainability Criterions for Heat Exchanger Design  
In: NATO Advanced Study Institute  
Co-authors: N. Afgan  
Venue: Izmir, Turkey  
Date: 25 May-5 June 1998
43. Title: Control, Design and Operation Optimization of Industrial Combustion Equipment Based on Computer Simulation  
Venue: Norwegian University of Science and Technology, Trondheim, Norway  
Date: 22 January 1998
44. Title: Control, Design and Operation Optimization of Industrial Combustion Equipment Based on Computer Simulation  
Venue: Yale University, USA  
Date: 4 August 1997
45. Title: O Papel da Mecânica de Fluidos Computacional na Gestão da Energia e do Ambiente em Edifícios  
In: Energia e Espaço Urbano - O Caso EXPO'98 - Novas Tecnologias de Apoio o Projecto e Gestão do Ambiente Contruído  
Co-authors: João E. Ramos  
Venue: INETI, Lisbon, Portugal  
Date: 26-27 June 1997  
Published: Comunicações, pp. 39-46
46. Title: NO<sub>x</sub> Abatement Technologies in Coal-fired Utility Boilers  
In: New Concepts in Energy Sector. Projecto Tempus  
Co-authors: J.L.T. Azevedo and L. Coelho  
Venue: Zakopane, High Tatra Mountains, Poland  
Date: 20 June 1997
47. Title: Expert Systems and the Use of Mathematical Models in On-line Glass Melting Optimization  
In: Advanced Control for Industrial Glass Melters  
Co-authors: M. Nogueira and N. Speranskaia  
Venue: Maastricht, The Netherlands  
Date: 6-7 May 1997
48. Title: Optimização de Sistemas Industriais de Queima  
Venue: Academia de Engenharia, Lisbon, Portugal

- Date: 7 April 1997
49. Title: Expert System for Energy Efficiency and Pollution Abatement in Industry  
In: Seminar on Rational Use of Energy in Industry  
Venue: University of Liège, Belgium  
Date: 25-26 November 1996
50. Title: Modelação Numérica de Técnicas de Redução de NO<sub>x</sub> em Caldeiras de Carvão Pulverizado  
In: Jornadas Europeias sobre Tecnologias de Combustão Limpa de Carvões  
Co-authors: L.M.R. Coelho and J.L.T. Azevedo  
Venue: University of Aveiro, Portugal  
Date: 13 November 1996
51. Title: Control, Design and Operation Optimization of Industrial Furnaces and Boilers  
In: Tempus Structural Joint European Project  
Venue: Technical University of Sofia, Bulgaria  
Date: 16-18 September 1996
52. Title: Modelação Numérica de Fornos Industriais  
In: Secção Portuguesa do Instituto de Combustão  
Venue: Lisbon, Portugal  
Date: June 1996
53. Title: Radiative Heat Transfer in Combustion Chambers  
In: Tempus Structural Joint European Project  
Co-author: T. Farias  
Venue: Niedzica, Poland  
Date: 17-22 June 1996  
Published: Proceedings of a Workshop on Measurement Techniques in Energy Systems and Processes, pp. 329-359
54. Title: Mathematical Modelling and Experimental Validation of Industrial Combustion Chambers  
In: Tempus Structural Joint European Project  
Venue: Niedzica, Poland  
Date: 17-22 June 1996
55. Title: Improvement of Energy Efficiency in Furnaces, Kilns and Ovens  
In: Open Workshop on Advanced Modelling and Sensoring Tools for Energy Saving in Industry  
Venue: Hotel Tivoli, Sintra, Portugal  
Date: 10-12 April 1996
56. Title: Mathematical Modelling of Radiative Heat Transfer  
In: Tempus Structural Joint European Project  
Co-author: T. Farias  
Venue: Gliwice, Poland  
Date: 19-24 June 1995
57. Title: Mathematical Modelling of Industrial Furnaces and Boilers  
In: Tempus Structural Joint European Project  
Venue: Gliwice, Poland  
Date: 19-24 June 1995
58. Title: Optical Operation of Kilns in the Ceramic Industry  
In: COMETT Seminar sponsored by the European Union  
Venue: École Supérieure de l'Énergie et des Matériaux, University of Orleans, France  
Date: 12-16 June 1995
59. Title: Tecnologia Limpas de Combustão - Avaliação de Modificações na Combustão para a Redução de NO<sub>x</sub> em Sistemas de Combustão  
In: Colloquium "Petróleos e Ambiente - Novas Tecnologias. Prós e Contras"  
Venue: Ordem dos Engenheiros, Lisbon, Portugal  
Date: 5 June 1995
60. Title: Avaliação de Modificações na Combustão para a Redução de Emissões de NO<sub>x</sub> em Caldeiras de Carvão Pulverizado  
In: Jornadas Europeias sobre Tecnologias de Combustão Limpa de Carvões organised by programme THERMIE  
Venue: Serviço de Transportes Colectivos do Porto, Oporto, Portugal  
Date: 18 May 1995
61. Title: Modelling of Glass Melting Furnaces for the Development of Expert Systems  
In: Joint IST/IVD Workshop on Mathematical Modelling of Industrial Furnaces

- Venue: University of Stuttgart, Germany  
Date: 13 October 1994
62. Title: Radiative Heat Transfer Modelling.  
In: Joint IST/IVD Workshop on Mathematical Modelling of Industrial Furnaces  
Venue: University of Stuttgart, Germany  
Date: 13 October 1994
63. Title: Combustion Fundamentals and Simulation of Large Scale Equipment.  
In: Workshop on Simulation of Combustion in Large Scale Equipment  
Venue: ENEL, Pisa, Italy  
Date: 15 September 1994
64. Title: Modelação da Combustão de Carvão Pulverizado em Centrais Termoeléctricas — O Caso da Central Termoeléctrica de Sines  
In: Conferência sobre Tecnologias de Combustão Limpa de Carvões organized by Programme THERMIE  
Venue: I.S.T., Lisbon, Portugal  
Date: 28 June 1994
65. Title: 3-D Numerical Model for Predicting NO<sub>x</sub> Emission from an Industrial Pulverized Coal Combustor  
In: SINO-EU Workshop on Fluidized Bed Combustion  
Co-authors: C. Coimbra and J. Azevedo  
Venue: Huazhong University of Science and Technology, Wuhan, China  
Date: 23-25 June 1994  
Published: SINO-EU Workshop on Fluidized Bed Combustion, European Commission DGXII, ed. I.F.W. Romey, September 1995, pp. 197-198.
66. Title: Mathematical Simulation of a Circulating Fluidized Bed Combustor  
In: SINO-EU Workshop on Fluidized Bed Combustion  
Co-authors: P. Saraiva and J. Azevedo  
Venue: Huazhong University of Science and Technology, Wuhan, China  
Date: 23-25 June 1994  
Published: SINO-EU Workshop on Fluidized Bed Combustion, European Commission DGXII, ed. I.F.W. Romey, September 1995, pp. 195-196
67. Title: Mathematical Modelling of Coal-Fired Fluidized Bed Combustors  
In: SINO-EU Workshop on Fluidized Bed Combustion  
Co-authors: J. Azevedo and D.F.G. Durão  
Venue: Huazhong University of Science and Technology, Wuhan, China  
Date: 23-25 June 1994.  
Published: SINO-EU Workshop on Fluidized Bed Combustion, European Commission DGXII, ed. I.F.W. Romey, September 1995, pp. 193-194.
68. Title: Combustion Modelling  
In: Generic Combustion Workshop  
Venue: European Commission, Brussels, Belgium  
Date: 12-13 April 1994
69. Title: Desenvolvimento e Especificidade dos Projectos Aeroespaciais  
In: Seminário-Tecnologia e Indústria Aeroespaciais  
Venue: Centro Cultural de Belém, Lisbon, Portugal  
Date: 18-22 October 1993
70. Title: Modelling of Glass Melting Industrial Furnaces  
Co-author: M. Nogueira  
Venue: Tsinghua University, China  
Date: 20 August 1993
71. Title: Three-dimensional Mathematical Modelling of 100% Oxi-fuel Fired Glass Furnaces  
In: Seminar organized by PRAXAIR, USA  
Co-author: M. Nogueira  
Venue: Venice, Italy  
Date: 23 June 1993
72. Title: Optimização de Fornos de Vidro Usando um Modelo Tri-dimensional  
In: "Novas Tecnologias na Indústria do Vidro - A Utilização de Gases Industriais" - PEDIP Programme 5  
Co-author: M. Nogueira  
Venue: Marinha Grande, Portugal

- Date: 19 November 1992
73. Title: Physically-Based Mathematical Modelling of Glass-Melting of Glass-Melting Furnaces  
Venue: Drexel University, Department of Mechanical Engineering and Mechanics, Philadelphia, USA  
Date: 7 August 1992
74. Title: Heat Transfer in Gas Turbine Combustors - Window-On-Science. Programme financed by the USAF (United States Air Force) Office of Scientific Research.  
Venue: Wright Laboratory, Wright - Petterson Air Force Base, Ohio, USA.  
Date: August 1992
75. Title: A Computer Code to Predict the Flow, Combustion and Heat Transfer in Glass Melting Kilns  
Venue: University of Erlangen-Nuremberg, Germany  
Date: 9 December 1991
76. Title: O Projecto de Fornos Industriais e Caldeiras  
In: O Projecto Mecânico e a Indústria  
Venue: Instituto Superior Técnico, Lisbon, Portugal  
Date: 8-12 April 1991
77. Title: Present Activities and Future R&D Requirements in Furnace Modelling - Workshop "Furnace Modelling".  
In: 2nd European Conference on Industrial Furnaces and Boilers - INFUB  
Venue: Vilamoura, Portugal  
Date: 4 April 1991
78. Title: Modelling and Optimization of Industrial Glass Furnaces  
Venue: Saint Gobain, France  
Date: 21 February 1991
79. Title: Modelação Física e Matemática de Transmissão de Calor por Radiação  
Venue: Physics Department, IST, Lisbon, Portugal  
Date: January 1990
80. Title: CIM for the Environment  
In: 6th ESPRIT Conference  
Venue: Brussels, Belgium  
Date: 29 November 1989
81. Title: Mathematical Modelling of Coal Fired Fluidised Bed Combustors  
In: COMETT "Combustion en Lechos Fluidizados"  
Co-author: J.L.T. Azevedo  
Venue: University of Zaragoza, Spain  
Date: 31 May-2 June 1989
82. Title: Modelação de Fenómenos Ocorrentes em Fornos e Caldeiras  
Venue: Instituto Superior Técnico, Lisbon, Portugal  
Date: 17 February 1989
83. Title: Modelação Matemática Aplicada à Propagação de Incêndios  
Venue: SEGUREX, F.I.L., Lisbon, Portugal  
Date: 26 January 1989
84. Title: Modelling of Fluidized Coal Combustion  
Venue: University of Zaragoza, Spain  
Date: September 1988. Invited by Prof. C. Dopazo
85. Title: Modelling of Three-dimensional Combustion Chambers  
Venue: University of Zaragoza, Spain  
Date: September 1988. Invited by Prof. C. Dopazo
86. Title: Improved Design for Glass Smelting Kilns  
In: Meeting organized by DG XII E.C. - "Energy Efficiency in Industrial Processes"  
Venue: Brussels, Belgium  
Date: 29 June 1988
87. Title: Sistemas de Queima  
In: 1<sup>as</sup> Jornadas IST/LNETI para a Inovação e Modernização Industrial  
Venue: Lisbon, Portugal  
Date: 27-28 April 1988
88. Title: Simulação Numérica de Fornos Industriais  
Venue: COPPE – Federal University of Rio de Janeiro, Brazil  
Date: April 1988

89. Title: Utilização de Gás Natural e Fuel na Indústria Vidreira  
 In: 1<sup>as</sup> Jornadas Técnicas de Engenharia Mecânica  
 Venue: Ordem dos Engenheiros, Lisbon, Portugal  
 Date: March 1988
90. Title: Modelling of Industrial Furnaces  
 In: Workshop "Physical and Mathematical Modelling of Furnaces".  
 1st European Conference on Industrial Furnaces and Boilers - INFUB  
 Venue: Lisbon, Portugal  
 Date: 23 March 1988
91. Title: Modelling of Thermal Radiation  
 In: COMETT "European Programme of Professional Training in Combustion Energy and Pollution"  
 Venue: Lisbon, Portugal  
 Date: February 1988
92. Title: Modelação Numérica de Fornos Industriais  
 In: Meeting on "Management and Conservation of Energy in Burning of Energy in Burning Systems"  
 Venue: Portuguese Section of the Combustion Institute, Lisbon, Portugal  
 Date: 16 June 1986
93. Title: Estudo das Condições de Funcionamento de um Forno de Vidro Cerâmico  
 In: Meeting on "Optimization of the Efficiency in Combustion Systems"  
 Venue: Portuguese Section of the Combustion Institute, Lisbon, Portugal  
 Date: 31 January 1985
94. Title: Prediction of a Glass Furnace  
 In: Meeting on "Combustion and Fuels"  
 Venue: Portuguese Section of the Combustion Institute, Lisbon, Portugal  
 Date: 5 January 1984
95. Title: Mathematical Simulation of an Industrial Combustion Chamber  
 Venue: Imperial College, Mechanical Engineering Department, Fluids Section, London, U. Kingdom  
 Date: May 1983

### **I) Papers of Scientific and Technical Dissemination**

1. A Importância das Regiões Ultra-Periféricas para o Espaço Europeu de Investigação – O Caso da Madeira". Madeira Regional Government, Funchal, Madeira, Portugal, 24 January 2003.
2. Presentation on Continuous Training. Encontro Nacional do Colégio de Engenharia Civil da Ordem dos Engenheiros, Oporto, Portugal, 25-26 October 2002.
3. "The Qualification of the Engineers in Portugal". CLAIU Meeting, Ordem dos Engenheiros, Lisbon, Portugal, 16 September 2002.
4. "A Engenharia na Resposta aos Desafios da Sociedade". Debate sobre "A Integração do Conhecimento no Tecido Empresarial". Instituto Superior Técnico, Lisbon, Portugal, 5 August 2002.
5. "A Declaração de Bolonha e a Acreditação Profissional das Formações em Engenharia". Grupo de reflexão no âmbito do Conselho Coordenador dos Colégios da Ordem dos Engenheiros, Abril 2002.
6. "Sociedade do Hidrogénio". INETI, Lisbon, Portugal, 22 March 2002.
7. "RTD Priorities for Energy in FP6 – Developments in the Power Sector", co-authored by Manfred Aigner. Debate on the 6<sup>th</sup> Framework Programme, European Parliament, Brussels, Belgium, 16 October 2001.
8. "A Engenharia como Factor de Integração das Ilhas da Macaronésia". III Jornadas de Ingeniería Insular (Azores, Madeira, Cabo Verde y Canarias), Institución Ferial de Canarias (INFECAR), Las Palmas de Gran Canaria, Canarias, 12-15 June 2001
9. Intervention at the Meeting on the Reconstruction of Scientific Cooperation in South East Europe, organized by UNESCO (ROSTE), co-authored by Prof. N. Afgan, Venice, Italy, 24-27 March 2001
10. "Management Policies of Industrial and Hospital Wastes". Evaluation of the implementation processes of the several strategy plans, Lisbon, Portugal, January 2001.
11. "Acreditação de Acções de Formação Contínua para a Qualificação de Competências dos Engenheiros". 2<sup>o</sup> Encontro Nacional do Colégio de Engenharia Mecânica da Ordem dos Engenheiros, Coimbra, Portugal, 15-16 December 2000.

12. "A Certificação da Formação Contínua". Co-author José Manuel Tribolet. Representative of the Portuguese Society of Engineers in the 25<sup>th</sup> Anniversary of Engineering in Universidade do Minho, Guimarães, Portugal, 8 November 2000.
13. Presentation of the Panel "Science and Modelling in e-Europe" in MODELUS 2000 – Modelling for a Sustainable Development, Estoril, Portugal, 13 October 2000.
14. Participation in the Discussion Panel "Diversas Maneiras de Ver" within the Seminar "Perspectivas para a Produção e Utilização de Energia em Portugal", Ordem dos Engenheiros, Lisbon, Portugal, 12 October 2000.
15. Presentation of the Conclusions of the Study on the Emissions Market in Portugal, Renewable Electricity Certificate Trading, Lisbon Workshop Programme, Instituto Superior Técnico, Lisbon, Portugal, 18 July 2000.
16. Debate in the Seminar on the Potentialities of the RTD 5<sup>th</sup> Framework for the Portuguese Industry, Ordem dos Engenheiros, Lisbon, Portugal, 21 June 2000.
17. Information Sessions of the E.C. Programme Energie, Museu da Electricidade, Funchal, Madeira, Portugal, 23 March 2000 and Instituto Superior Técnico, Lisbon, Portugal, 24 March 2000.
18. "An Integrated Model for the Sustainable Development for South European Cities". European Parliament, Brussels, Belgium, 27 May 1999.
19. Information Sessions on the E.C. Programme of R & TD Energy, Environment and Sustainable Development (1998-2002), Instituto Superior Técnico, Lisbon, Portugal, 15 April 1999.
20. Energia". Information Day of the 5<sup>th</sup> Framework on R&TD (1998-2002). Laboratório Nacional de Engenharia Civil, Lisbon, Portugal, 29 January 1999.
21. "A Ordem e a Formação Contínua dos Engenheiros". Representative of Ordem dos Engenheiros in the Meeting "A Ciência e a Tecnologia como Factores de Desenvolvimento Nacional". Instituto Pedro Nunes, Coimbra, Portugal, 16 October 1998, Proceedings, pp. 165-167.
22. Participation in the Debate Panel within the Forum Portugal Ciência e Tecnologia. Laboratório Nacional de Engenharia Civil, Lisbon, Portugal, 21 April 1998.
23. Written contribution to "Dossier on Women and Sustainable Development" of the series "Women of Europe Dossiers" published by Women's Information Section, DG X European Commission, Brussels, Belgium, November 1997.
24. "The JOULE Activities in the Area of Clean Technologies for Solid Fuels". Thermie Solid Fuels Contractor's Meeting, Athens, Greece, 8-10 October 1997.
25. "Investigação, Desenvolvimento Tecnológico e Demonstração na Área da Energia em Portugal". Direcção Geral do Ensino Superior e Ciência, I Jornadas de Ciência e Tecnologia, Mindelo, Cape Verde, 30 September 1997.
26. "How to Secure an Adequate Science Base in Europe to Support Cooperation in the Field of HPC CFD Modelling". Discussion in a Specialists Pannel at the Conference "The Industrial Application of HPC CFD", Manchester, United Kingdom, 22 May 1997.
27. "Estudo das Condições de Operação das Instalações de Cogeração com Motores Diesel". APPEC - Associação Portuguesa de Produção de Energia em Cogeração, Lisbon, Portugal, 11 March 1997.
28. "Research on Energy for a Sustainable Development". Proposal of Guidelines for PRAXIS XXI. Co-author: Prof. Eduardo Oliveira Fernandes, March 1995.
29. "Simulação Física e Matemática de Câmaras de Combustão" - Paper in Revista Futuro, 1992.
30. Participation in a TV Programme of the American network Maryland Public Television - "Europe - Road to Unity" - 1 hour. Exhibit of Science and Technology in Portugal.
31. Participation in the video entitled "Sky Technology for Europe" (19 min 14 sec). Exhibit of a Brite/Euram Project in the area of Aeronautics.
32. "The Development of a Five Nation European Postgraduate Training Programme in the Area of Fluid and Heat Transfer Engineering", December 1986.
33. Heat and Mass Transfer. Programme and Pedagogic Methods, March 1986.

## **COURSES**

20 Courses (National and International)

## **PATENTS**

- Registration of a copyright on a scientific work entitled: "3D VITRUM - Physically Based Three-Dimensional Model of Glass Furnaces - Computational Application".
- National Patent No. 101653 - registered by the Portuguese Instituto Nacional da Propriedade Industrial, in 1998: "Fluxímetro de Sopros – Instrumento para a Medição de Fluxos de Calor por Radiação e Convecção". Together with N. Martins, N. Afgan and A. Leontiev.

## **MISSIONS TO FOREIGN INSTITUTIONS**

Maria da Graça Carvalho has been in 63 countries in Working Missions.