

CURRICULUM VITAE

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Juan I. Ramos

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DATE OF BIRTH: January 28, 1953

EDUCATION

- Madrid Polytechnic University, School of Aeronautical Engineering, Madrid, Spain, February 1983, *Doctor of Engineering*.
- Princeton University, Department of Mechanical and Aerospace Engineering (September 1977 - May 1980), Princeton, New Jersey, May 1980, *Ph.D.*
- Princeton University, Department of Mechanical and Aerospace Engineering (September 1977 - May 1980), Princeton, New Jersey, January 1979, *M.A.*
- Madrid Polytechnic University, School of Aeronautical Engineering. (October 1970 - July 1975), Madrid, Spain, July 1975, *Bachelor in Aeronautical Engineering* (graduated first in class).

ACADEMIC EXPERIENCE

- *Professor*, Escuela Técnica Superior de Ingenieros Industriales (School of Mechanical Engineering), Universidad de Málaga, Spain (21 January 1992-present.)
- *Professor*, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (September 1, 1989 - September 4, 1993).
- *Associate Professor*, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (September 1, 1985 - August 31, 1989).
- *Assistant Professor*, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (September 1, 1980 - August 31, 1985).

- *Faculty Member*, Center for Energy and Environmental Studies, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (September 1980 - September 1991).
- *Faculty Member*, Environmental Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (October 1991 - September 4, 1993).
- *Instructor (part-time)*, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA (September 1, 1979- August 31, 1980).
- *Teaching Assistant*, Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, New Jersey, USA (January - May 1979, June 1979-August 1979).
- *Research Assistant*, Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, New Jersey, USA (September 1977 - December 1978).

VISITING APPOINTMENTS

- *Visiting Professor* (on sabbatical leave from Carnegie Mellon University), Facultad de Informática/Escuela Técnica Superior de Ingenieros de Telecomunicación, Universidad de Málaga, Málaga, Spain (May 1990 - April 1991).
- *Visiting Professor*, Dipartimento di Ingegneria Meccanica, II Università degli Studi di Roma "Tor Vergata," Rome, Italy (May - June 1988; July 1989).

INDUSTRIAL EXPERIENCE

- Gruppo Nazionale per la Vulcanologia, Gruppo Simulazione Eruzioni, Dipartimento di Scienze della Terra, Università di Pisa, Pisa, Italy. 1 January 1991-30 October 1992. (Invited).
- NASA Lewis Research Center, Cleveland, Ohio, Combustion Technology Branch, Summer Faculty Fellow, June - September 1988.
- Life Systems, Inc., Cleveland, Ohio, Consultant on Pressure Drop in and Design of Air Filters, June - July 1988. "Pressure drop of NBC filter" and "High pressure NBC filter for the V-22 aircraft."
- AeroChem Research Laboratories, Inc., Princeton, New Jersey, Consultant on Turbulent Jet Noise, February 1988 - May 1991. Consultant with Professor Steve A. Orszag on Contracts NAS1-18849 and NAS1-18849(J217) corresponding to Phase I (February 1988-December 1989) and II (January 1990-March 1991) entitled "Direct computation of turbulent noise" funded by NASA Langley Research Center, Hampton, Virginia, USA, under SBIR (Small business innovation research).
- Software Engineering Institute, Carnegie Mellon University, Pittsburgh, Pennsylvania. Consultant on Aircraft Dynamics and Control, September 1986. "Introduction to airplane simulators: Flight dynamics, stability and control."
- NASA Lewis Research Center, Cleveland, Ohio, Turbine and Rotary Engine Technology Branch, 17 April - 11 June 1986.
- NASA Lewis Research Center, Cleveland, Ohio, Summer Faculty Fellow, Intermittent Combustion Engine Branch, May - August 1982.
- PPG Industries, Fiber Glass Research Center, Pittsburgh, Pennsylvania. Consultant on numerical analysis and modelling of "Bubble dynamics in glass melts" and "Melt spinning of glass fibers". Fiber Glass Forming Processes, February 1982 - August 1984.

- NASA Lewis Research Center, Cleveland, Ohio, Summer Graduate Student, Intermittent Combustion Engine Branch, May - August 1979.
- Equipos Nucleares, S.A., Santander (Spain), Research Engineer, Department of Nuclear Vessel Design, May - August 1977. "Design of nuclear vessels".
- Aeronáutica Industrial, S.A. (A.I.S.A.), Madrid (Spain), Research Engineer, Department of Helicopter Design, January 1976 - May 1977. "Design of a modern autogyro".
- Spanish Air Force, Madrid (Spain), Aeronautical Engineers Corps, Second Lieutenant, October 1975 - January 1977.
- Sociedad Española de Construcciones Babcock and Wilcox, Bilbao (Spain), Engineer (summer employee), Locomotives Department, July - September 1975.
- Construcciones Aeronáuticas, S.A. (C.A.S.A.), Madrid (Spain), Apprentice Engineer (summer employee), AIRBUS-300B Department, July - September 1973.

RESEARCH EXPERIENCE

- Applied Mathematics, Computational Fluid Mechanics, Numerical Analysis, Combustion, Internal Combustion Engines, Swirl Stabilized Combustors, Nonlinear wave propagation, Reaction-diffusion equations.

TEACHING EXPERIENCE

- Undergraduate courses taught: Mathematics in Engineering II, Engineering Analysis II, Potential Flow and Aerodynamics, Heat Transfer, Mechanical Engineering Seminar I, Mechanical Engineering Seminar II, Fluid Mechanics, Stress Analysis, Numerical methods.
- Graduate courses taught: Computational Fluid Mechanics, Mathematical Techniques in Mechanical Engineering II, Turbulent Flow, Conductive and Radiative Heat Transfer, Complex Variables, Linear Algebra, Combustion, Fluid Mechanics, Numerical methods.

HONORS AND AWARDS

- Certificate of recognition for contributing to the organization of activities and scientific program of the 11th IMACS World Congress on System Simulation and Scientific Computing, Oslo, Norway, 5-9 August 1985.
- Ralph R. Teetor Award, Society of Automotive Engineers, February 1981.
- George Van Ness Lothrop Fellowship in Engineering awarded to Ph. D. students in their final year, Princeton University, September 1979 - May 1980.
- Honorary Daniel and Florence Guggenheim Fellow, Princeton University, May - August 1978.
- Daniel and Florence Guggenheim Fellow, Princeton University, September 1977 - January 1978.
- National Award in Aeronautical Engineering, His Majesty the King Juan Carlos I of Spain, March 1977.
- Aeronautical Engineering Medal, Ministry of Education and Science, Madrid, Spain, March 1977.

- Prize "Francisco Arranz," Association of Aeronautical Engineers, Madrid, Spain, October 1975.

EDITORIAL BOARDS

- *Applied Mathematical Modelling*, Regional Editor for North America, September 1986 - November 1993; Associate Editor, December 1993 – February 2013; International Subject Editor, March 2013-October 2015. (Published by Butterworth-Heinemann, Stoneham, Massachusetts, until December 1994, and by Elsevier Science, Inc., New York, since January 1995). **(Invited)**. ISSN: 0307-904X.
- *International Journal of Numerical Methods for Heat and Fluid Flow*, Advisory Editor to the Journal and Member of the International Editorial Board, John Wiley & Sons and Pineridge Press, July 1990-February 1996; MCB University Press, Emerald Group Publishing Limited, Bingley, United Kingdom, March 1996-2013; member of the Editorial Advisory Board, January 2014-present. **(Invited)**. ISSN: 0961-5539.
- *Hybrid Methods in Engineering: Modeling, Programming, Analysis, Animation*, Member of the International Editorial Board, Begell House, Inc., New York, 6 September 1997-31 December 2002. **(Invited)**. ISSN: 1099-2391.
- *Progress in Computational Fluid Dynamics (PCFD)*, Member of the International Editorial Board, Inderscience Enterprises, Ltd., Oxford, United Kingdom, 5 October 2000-present. **(Invited)**. ISSN: 1468-4349.
- *International Journal of Management Science and Engineering Management*, Co-Editor in Chief, World Academic Press, World Academic Union, Edited by International Committee of Management Science, WAU, United Kingdom, Academic House, Mill Lane, Wavertree Technology Park, Liverpool, Merseyside, United Kingdom, 30 May 2006-2009. **(Invited)**. ISSN: 1750-9653 (print); ISSN: 1750-9661 (online). Taylor & Francis Group, 4 Park Square, Milton Park, Abingdon, OX14 4RN, United Kingdom, 2010-31 December 2014. ISSN: 1750-9653.
- *The Open Mechanical Engineering Journal*, Member of the International Editorial Board, Bentham Science Publishers, Ltd., Pennington, New Jersey, Oak Park, Illinois, 8 May 2007-present. **(Invited)**. ISSN: 1874-115X.
- *Open Mechanical Engineering Reviews*, Member of the International Editorial Board, Bentham Science Publishers, Ltd., Pennington, New Jersey, Oak Park, Illinois, 8 May 2007-present. **(Invited)**. ISSN: 1874-1576.
- *Open Mechanical Engineering Letters*, Member of the International Editorial Board, Bentham Science Publishers, Ltd., Pennington, New Jersey, Oak Park, Illinois, 8 May 2007-present. **(Invited)**. ISSN: 1874-1568.
- *Applied Mathematics and Computation*, Associate Editor, 11 January 2008 – 2011. Elsevier, Amsterdam, The Netherlands. **(Invited)**. ISSN: 0096-3003.
- *The Open Conference Proceedings Journal*, Member of the International Editorial Board, Bentham Science Publishers, Ltd., Pennington, New Jersey, Oak Park, Illinois, 21 May 2010-present. **(Invited)**. ISSN: 2210-2892.
- *Rattan Management-An International Biannual Blind Refereed Journal of Management & Technology*, Member of the Advisory Board, Institute of Management & Technology, Punjabi University, Patiala, Punjab, India, 13 October 2010-present. **(Invited)**.

PROFESSIONAL SOCIETIES

- Society of Industrial and Applied Mathematics, 1980 - present.

- American Institute of Aeronautics and Astronautics, 1980 - 1986.
- Sigma Xi, The Scientific Research Society, 1980 - 1986.
- Society of Automotive Engineers, 1981 - 1982, 1985 - 1986.
- IMACS, International Association for Mathematics and Computers in Simulation, 1982.
- Society of Engineering Science, Inc., 1981.

PROFESSIONAL ACTIVITIES

- *Invited member* of the Panel Discussion, *Workshop on Combustion in Engines*, Department of Mechanical Engineering, Imperial College of Science and Technology, London, England, 7-8 July 1980.
- *Invited member*, *Workshop on Liquid Metal Magnetohydrodynamics Code Development*, Argonne National Laboratory, Argonne, Illinois, 20 January 1984.
- *Invited member*, *Liquid Metal Workshop*, Argonne National Laboratory, Argonne, Illinois, 18-19 June 1985.
- *Chairman*, "Session K.2: Boundary Fitted Coordinates," *Fourth International Conference on Numerical Methods in Laminar and Turbulent Flow*, University College of Swansea, Swansea, United Kingdom, 9-12 July 1985.
- *Chairman*, "Session I-3: Modelling and Simulation of Distributed Parameter Systems," *11th IMACS World Congress on System Simulation and Scientific Computing*, Oslo, Norway, 5-9 August 1985. (Invited).
- *Chairman*, "Session I-4: Application of Finite Element Methods," *11th IMACS World Congress on System Simulation and Scientific Computing*, Oslo, Norway, 5-9 August 1985. (Invited).
- *Invited member* of the Panel Discussion, *Workshop on Rotary Engine Technology*, Small Engine Propulsion Branch, NASA Lewis Research Center, Cleveland, Ohio, 25 October 1985.
- *Chairman*, "Session C.3 - Combustion and Thermal Phenomena III," *First World Congress on Computational Mechanics*, University of Texas at Austin, Austin, Texas, 22-26 September 1986. (Invited).
- *Chairman*, "Session: Fuel Sprays," *Congress on Modeling of Internal Combustion Engines*, Polytechnic University of Valencia, Valencia, Spain, June 8-11, 1987. (Invited; unable to attend).
- *Chairman*, "Session: Jets and Combustion I," *Fifth International Conference on Numerical Methods in Laminar and Turbulent Flow*, Montreal, Canada, July 6-10, 1987. (Invited; unable to attend).
- *Main Lecturer*, "Advanced Course on Computer Simulation for Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines," *XIXth International Centre for Heat and Mass Transfer*, Dubrovnik, Yugoslavia, 31 August - 4 September 1987. (Invited).
- *Invited Member*, "High Speed Commercial Transport Fuels Workshop. Working Committee III: Engine Fuel System Considerations," NASA Lewis Research Center, Cleveland, Ohio, 14-15 October 1987.

- *Invited Lecturer*, "Modelli di Combustione per Motori per Autotrazione," Associazione Termotecnica Italiana, Aula Magna, Facolta di Ingegneria, *Dipartimento di Ingegneria Meccanica per L'Energia*, *Universita di Napoli*, Naples, Italy, 20-21 June 1988.
- *Session Organizer*, "Numerical Methods for Chemically Reacting Flows I and II," *Twelfth IMACS World Congress on Scientific Computation*, La Sorbonne, Paris, France, 18-22 July 1988.
- *Chairman*, "Session 3B," *International Conference on Computational Methods in Flow Analysis*, Okayama University of Science, Okayama, Japan, 5-8 September 1988. (Invited).
- *Invited Lecturer*. I taught a 45-hour advanced course entitled "Combustion and Internal Combustion Engines" at the *Dipartimento di Energetica, Universita degli Studi de L'Aquila*, Localita Monteluco, Italy, 17-25 January 1989.
- *Member of the International Organizing Committee*, *Seventh International Conference on Finite Element Methods in Flow Problems*, The University of Alabama in Huntsville, Huntsville, Alabama, 3-7 April 1989. (Invited).
- *Organizer*, "Sessions EL1, EL2 and EL3: Electromagnetic Field Problems," and *Chairman*, "Sessions EL1 and EL3," *Seventh International Conference on Finite Element Methods in Flow Problems*, The University of Alabama in Huntsville, Huntsville, Alabama, 3-7 April 1989.
- *Organizer*, "Sessions CB1, CB2 and CB3: Combustion," and *Chairman*, "Sessions CB1 and CB3," *Seventh International Conference on Finite Element Methods in Flow Problems*, The University of Alabama in Huntsville, Huntsville, Alabama, 3-7 April 1989.
- *Organizer*, "Sessions MA1 and MA2: Magnetohydrodynamics," and *Chairman*, "Session MA1," *Seventh International Conference on Finite Element Methods in Flow Problems*, The University of Alabama in Huntsville, Huntsville, Alabama, 3-7 April 1989.
- *Chairman*, "Special Lecture SL2: T.J. Chung, Numerical Simulations in Combustion," *Seventh International Conference on Finite Element Methods in Flow Problems*, Huntsville, Alabama, 3-7 April 1989. (Invited).
- *Co-Chairman* (with Professor T.J. Chung), Sessions X/L1 and X/P3 both entitled "Numerical Methods for Combustion Problems," *Second World Congress on Computational Mechanics*, University of Stuttgart, Stuttgart, Federal Republic of Germany, 27-31 August 1990. (Invited).
- *Co-Chairman* (with Professor V. K. Tripathi), Session 12: "Transmission Lines/Waveguides," *Third International Symposium on Recent Advances in Microwave Technology (ISRAMT '91)*, Reno, Nevada, 18-21 August 1991. (Invited. Unable to attend).
- *International Conference on Active Volcanoes and Risk Mitigation*, Workshop on Prospects for the Simulation of Volcanic Eruptions, Naples, Italy, 28 August 1991. (Invited).
- *HSR (High Speed Research) Analytical Combustion Research Workshop*, Combustion Technology Branch, NASA Lewis Research Center, Cleveland, Ohio, 9-10 September 1991. (Invited).
- *Invited member of the International Steering Committee*, *Athens Interdisciplinary Olympia 91, "First International Symposium on Methods of Lines, Surfaces and Dimensional Reduction in Computational Mathematics and Mechanics,"* The National and Capodistrian University of Athens, Athens, Greece, 12-16 November 1991.
- *Chairman*, Session IVB, *Athens Interdisciplinary Olympia 91, "First International Symposium on Methods of Lines, Surfaces and Dimensional Reduction in Computational Mathematics and Mechanics,"* The National and Capodistrian University of Athens, Athens, Greece, 12-16 November 1991.

- *Invited Member, Program Review Subcommittee*, Twenty-Fifth International Symposium on Combustion, University of California, Irvine, California, USA, 31 July-5 August 1994.
- *Invited Member, Program Review Subcommittee*, Eighth International Symposium on Transport Phenomena in Combustion, San Francisco, California, USA, 16-20 July 1995.
- *Invited Member, Program Review Subcommittee*, The Twenty-Sixth International Symposium on Combustion, Università Federico II, Naples, Italy, 28 July-2 August 1996.
- *Member, Organizing Committee*, Jornadas de I+D, E. T. S. Ingenieros Industriales, Universidad de Málaga, Málaga, Spain, 13-14 March 1997.
- *Invited Member, Program Review Subcommittee*, The Twenty-Seventh International Symposium on Combustion, University of Colorado, Boulder, USA, 2-7 August 1998.
- *Chairman, Session: Flow with Heat Transfer 2, Tenth International Conference on Numerical Methods in Laminar and Turbulent Flow*, University of Wales, Swansea, United Kingdom, 22 July 1997. (Invited).
- *Invited Member, Organizing Committee, International Workshop on NHT (Numerical Heat Transfer/CFD (Computational Fluid Dynamics) Modules in Internet*, University of Maryland, College Park, Maryland, USA, 1-3 December 1997. (Invited).
- *Co-chairman (with Professor J. C. Merchuk, Department of Chemical Engineering, Ben-Gurion University of the Negev, Israel), Session 7: Two fluid systems and applications, International Symposium on Liquid-liquid Two-Phase Flow and Transport Phenomena*, International Centre for Heat and Mass Transfer, Antalya, Turkey, 3 November 1997. (Invited).
- *Invited Lecturer*, Seventh International Colloquium on Numerical Analysis and Computer Science with Applications, Plovdiv, Bulgaria, 13-17 August 1998. (Unable to attend; lecture presented by Ph. D. student Enrique Soler Castillo).
- *Invited Member, Program Review Subcommittee*, The Twenty-Eighth International Symposium on Combustion, University of Edinburgh, Scotland, 30 July-4 August 2000.
- *Invited Speaker Workshop on the application of CFD in the automotive industry: where do we want to be and how to get there?*, organized by Michigan State University and the National Science Foundation, Michigan State University, East Lansing, Michigan, 14-15 June 2000.
- *Co-chairman (with Professor M. R. Davidson, Department of Chemical Engineering, University of Melbourne, Australia), Session 4: Stability and Transition: Modelling and Experiments, International Symposium on Multiphase Flow and Transport Phenomena*, International Centre for Heat and Mass Transfer, Antalya, Turkey, 7 November 2000. (Invited).
- *Invited Member, International Scientific Committee, International Centre for Heat and Mass Transfer, CHT'01: An International Symposium on Advances in Computational Heat Transfer*, Palm Cove, Queensland, Australia, 20-25 May 2001.
- *Invited Member, Program Review Subcommittee*, The Twenty-Ninth International Symposium on Combustion, Hokkaido, Japan, 21-26 July 2002.
- *Invited Member, Program Review Subcommittee*, The Thirtieth International Symposium on Combustion, Chicago, USA, 25-30 July 2004.
- *Invited Member, Program Review Subcommittee*, The Thirty-First International Symposium on Combustion, The University of Heidelberg, Germany, 6-11 August 2006.

- *Co-chairman* (with Dr. Paul Miles, Sandia National Laboratories, Livermore, California, USA), Session 2F: Engine Combustion, The Thirty-First International Symposium on Combustion, The University of Heidelberg, Germany, 6-11 August 2006. (Invited; unable to attend.)
- *Invited Member, Program Review Subcommittee*, The Thirty-Second International Symposium on Combustion, McGill University, Montréal, Canada, 3-8 August 2008.
- *Member, International Program Committee*, The First International Conference on Management Science and Engineering Management, Chengdu, China, 14-16 July 2007. (Invited.)
- *Member, International Program Committee*, The Second International Conference on Management Science and Engineering Management, Three Gorges, Chongqing, China, 6-8 November 2008. (Invited.)
- *Member, International Program Committee Chair*, The Third International Conference on Management Science and Engineering Management, Bangkok, Thailand, 2-4 November 2009. (Invited.)
- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM*, The Third International Conference on Management Science and Engineering Management, Bangkok, Thailand, 2-4 November 2009.
- *Invited Member, Program Review Subcommittee*, The Thirty-Third International Symposium on Combustion, Tsinghua University, China, 1-6 August 2010. (Invited.)
- *Member, International Program Committee Chair*, The Fourth International Conference on Management Science and Engineering Management, Chung Yuan Christian University, Chungli, Taiwan, 15-17 November 2010. (Invited.)
- *Member, International Program Committee Chair*, The Fifth International Conference on Management Science and Engineering Management, Macao, People's Republic of China, 7-9 November 2011. (Invited.)
- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM*, The Fifth International Conference on Management Science and Engineering Management, Macao, People's Republic of China, 7-9 November 2011. (Invited.)
- *Invited Member, Program Review Subcommittee*, The Thirty-Fourth International Symposium on Combustion, Warsaw University of Technology, Warsaw, Poland, 29 July-3 August 2012.
- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM*, The Sixth International Conference on Management Science and Engineering Management, Islamabad, Pakistan, 11-14 November 2012. (Invited.)
- *Organizer, The third international conference on parallel, distributed, grid and cloud computing for engineering (PARENG2013), Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM*, Session PARENG13-S01 "Parallel computing of engineering problems", Pécs, Hungary, 25-27 March 2013. (Invited.)
- *Member of the editorial board, The third international conference on parallel, distributed, grid and cloud computing for engineering (PARENG2013)*, Pécs, Hungary, 25-27 March 2013. Proceedings

published by Civil-Comp Press, Kippen, Stirlingshire, United Kingdom, 2013, ISBN: 978-1-905088-56-0. (Invited.)

- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM, The Seventh International Conference on Management Science and Engineering Management, Philadelphia, USA, 7-9 November 2013. (Invited.)*
- *Program Committee Chair, The Eighth International Conference on Management Science and Engineering Management, Lisbon, Portugal, 20-25 July 2014. (Invited.)*
- *Invited Member, Program Review Subcommittee, The Thirty-Fifth International Symposium on Combustion, Hyatt Regency Embarcadero, San Francisco, California, USA, 3-9 August 2014.*
- *Co-chairman (with Professor Hirotatsu Wantanabe, Tokyo Institute of Technology, Japan), Session CMB2: Combustion (2), The 15th International Heat Transfer Conference, IHTC-15, 10-15 August 2014, Kyoto, Japan, 15 August 2014. (Invited.)*
- *Chairman, Session R14: Nonlinear Acoustics, 7th Forum Acusticum, 7-12 September 2014, Krakow, Poland, 09:30-10:30 (Papers R14_1/R14_3) and 11:00-12:40 (Papers R14_4/R14_8), 10 September 2014. (Invited.)*
- *Keynote Lecture: "Local linearization methods in space and time for nonlinear wave propagation", 6th International Conference on Modeling, Simulations and Applied Optimization, ICMSAO'15, 27-29 May 2015, Yildiz Technical University, Istanbul, Turkey (Invited.)*
- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM, The Ninth International Conference on Management Science and Engineering Management, Karlsruhe, Germany, 21-25 July 2015. (Invited.)*
- *Program Committee Chair, The Ninth International Conference on Management Science and Engineering Management, Karlsruhe, Germany, 21-25 July 2015. (Invited.)*
- *Program Committee Chair, The Tenth International Conference on Management Science and Engineering Management, Baku, Azerbaijan, 21-23 July 2016. (Invited.)*
- *Invited Member, Program Review Subcommittee, The Thirty-Sixth International Symposium on Combustion, Coex, Seoul, Korea, 31 July-5 August 2016.*
- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM, The Tenth International Conference on Management Science and Engineering Management, Baku, Azerbaijan, 30 August-2 September 2016. (Invited.)*
- *Program Committee Chair, The Eleventh International Conference on Management Science and Engineering Management, Kanazawa, Japan, 28-31 July 2017. (Invited.)*
- *Invited Member, Award Committee of the Annual Conference of the ISMSEM (International Society of Management Science and Engineering Management) Advancement Prize for MSEM, The Eleventh International Conference on Management Science and Engineering Management, Kanazawa, Japan, 28-31 July 2017. (Invited.)*
- *Invited Member, Program Review Subcommittee, The Thirty-Seventh International Symposium on Combustion, The Convention Centre Dublin, Ireland, 29 July-3 August 2018. (Invited.)*

- *Chairman, No Lineal Málaga 2018, XI International Conference on Nonlinear Mathematics and Physics, 12-15 June 2018, Wednesday, 13 June 2018.* (Invited.)

Ph.D. THESIS

- *"Axisymmetric Flow Fields in Motored and Firing Spark-Ignition Engines,"* Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, New Jersey, May 1980 (advisor: Professor William A. Sirignano).

BOOKS

1. J. I. Ramos, Seminario su *Modelli Termodinamici dei Motori ad Accensione Commandata e Diesel* tenuto del Prof. J. I. Ramos, Roma 30 Maggio-18 Giugno 1988, Dipartimento di Ingegneria Meccanica, II Università di Roma "Tor Vergata," Librerie Editrice Universitarie Tor Vergata, Via Raffaele Garofalo, 133, Via Pompeiano, Rome, Italy, May 1988. (v + 238 pp). (Text in English).
2. J. I. Ramos, *Internal Combustion Engine Modelling*, Hemisphere Publishing Corporation, New York, 1989. (xiv +422 pp). ISBN-10: **0891161570**, ISBN-13: **978-0891161578**
3. Salvador Bueno, Rosendo J. Galán Arboledas, Enrique Nava Baro, Juan Ignacio Ramos Sobrados, Carmen Baudín de la Lastra, Javier Álvarez de Diego y José Ángel Laguna Martínez, *OPAC: Herramientas para la optimización de las propiedades aislantes de las piezas cerámicas de arcilla cocida*, Fundación Innovarcilla, Centro Tecnológico de la Cerámica, Bailén, Jaén, Spain, 2013. (82 pp.) Depósito legal: **J-29-2013**.

BOOK CHAPTERS

1. J. I. Ramos, "Numerical Methods for One-Dimensional Reaction-Diffusion Equations Arising in Combustion Theory," *Annual Review of Numerical Fluid Mechanics and Heat Transfer*, edied by T. C. Chawla, Chapter 4, Vol. 1, pp. 150-261, 1987. (Invited). (ISBN-10: 3540177876, ISBN-13: 978-3540177876).
DOI: [10.1615/AnnualRevHeatTransfer.v1.60](https://doi.org/10.1615/AnnualRevHeatTransfer.v1.60)
2. J.I. Ramos, "Lectures on Mathematical Models of Spark-Ignition Engines," *Computer Simulation of Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines*, N.C. Markatos, ed., pp. 1-39, Hemisphere Publishing Corporation, New York, 1987. (Invited).
3. J.I. Ramos, "Lectures on Mathematical Models of Rotary Engines," *Computer Simulation of Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines*, N.C. Markatos, ed., pp. 41-94, Hemisphere Publishing Corporation, New York, 1987. (Invited).
4. J.I. Ramos, "Lectures on Mathematical Models of Diesel Engines," *Computer Simulation of Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines*, N.C. Markatos, ed., pp. 95-152, Hemisphere Publishing Corporation, New York, 1987. (Invited).
5. J.I. Ramos, "Mathematical Models of Spark-Ignition Engines," *Computer Simulation for Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines*, ed. N.C. Markatos, pp. 21-65, Hemisphere Publishing Corporation, New York, 1989 (ISBN-10: 0891163921, ISBN-13: 9780891163923).
6. J.I. Ramos, "Mathematical Models of Diesel Engines," *Computer Simulation for Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines*, ed. N.C. Markatos, pp. 67-130, Hemisphere Publishing Corporation, New York, 1989. (ISBN-10: 0891163921, ISBN-13: 9780891163923).
7. J.I. Ramos, "Mathematical Models of Rotary Engines," *Computer Simulation for Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines*, ed. N.C. Markatos, pp. 131-192,

Hemisphere Publishing Corporation, New York, 1989. (ISBN-10: 0891163921, ISBN-13: 9780891163923).

8. J. I. Ramos, "Finite Element Methods for One-Dimensional Flame Propagation Problems," Chapter 1, pp. 3-131 in T.J. Chung, ed., *Numerical Modeling in Combustion*, Taylor & Francis, Washington, D.C., 1993. (Invited). (ISBN-10: 0891168222, ISBN-13: 9780891168225).
9. J. I. Ramos, "Finite Difference Methods for Turbulent Chemically Reacting Flows," Chapter 5, pp. 281-373 in T.J. Chung, ed., *Numerical Modeling in Combustion*, Taylor & Francis, Washington, D.C., 1993. (Invited). (ISBN: 0891168222, ISBN-13: 9780891168225).
10. J. I. Ramos, "The Fluid Dynamics of Thin Annular Liquid Jets," in *Current Topics in the Physics of Fluids*, Vol. 1, pp. 75-112, edited by The Council of Scientific Information, Kaithamukku, Trivandrum, India, 1994. (Invited).
11. J. I. Ramos, "Mathematical models of compound, polymer optical fibers," Chapter 7, pp. 127-185, in "Polymer Research Developments", edited by Robert K. Bregg, Nova Science Publishers, Inc., New York, 2006 (ISBN-10: 1-59454-742-4). ISBN-10: 1594547424. ISBN-13: 978-1594547423
12. F. Dobran and J. I. Ramos, "Global volcanic simulation: Physical modelling, numerics, and computer implementation," Chapter 7, pp. 311-372, in *VESUVIUS: Education, Security and Prosperity, Developments in Volcanology, Volume 8*, edited by F. Dobran, Elsevier B. V., Amsterdam, The Netherlands, 2006. (ISBN-13: 9780444521040). [https://doi.org/10.1016/S1871-644X\(06\)80011-2](https://doi.org/10.1016/S1871-644X(06)80011-2)
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49. J.I. Ramos, "Lectures on Mathematical Models of Rotary Engines," Report CO/87/8, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, August 1987.
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80. J.I. Ramos, "Rotary Engine Spray Modelling," Final Report prepared for NASA Lewis Research Center, Cleveland, Ohio, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, 19 December 1992.
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87. L. F. Romero, E. L. Zapata and J. I. Ramos, *A Parallel Q-Method for a Semiconductor Laser Array Model*," Report No. UMA-DAC-96/23, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain, January 1996 (**8th Joint EPS - APS Int'l. Conf. on Physics Computing (Physics Computing'96)**), Krakow, Poland, September 17-21, 1996, pp. 325-328.
88. L. F. Romero, E. L. Zapata and J. I. Ramos, *Parallel Simulation of Semiconductor Laser Arrays*, Report No. UMA-DAC-96/25, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain, Euroconference: Supercomputation in Nonlinear and Disordered Systems: Algorithms, Applications and Architectures, San Lorenzo de El Escorial, Madrid, Spain, September 23-28, 1996, pp. 335-342. (Published by World Scientific Pub., Singapore, L. Vázquez, F. Tirado, and I. Martín, Eds., 1997).

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90. L. F. Romero, E. L. Zapata and J. I. Ramos, *Parallel Computing of Semiconductor Laser Equations*, Report No. UMA-DAC-97/02, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain, **8th SIAM Conf. on Parallel Processing for Scientific Computing**, Minnesota, MN, March 14-17, 1997.
91. L. F. Romero, E. L. Zapata and J. I. Ramos, *Nonlinear Dynamics of Semiconductor Laser Arrays*, Report No. UMA-DAC-97/23, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain, **4th SIAM Conf. on Applications of Dynamical Systems**, Snowbird, Utah, USA, May 18-22, 1997.
92. L. F. Romero, E. L. Zapata and J. I. Ramos, *Parallel BiCGSTAB Algorithm for SC Laser Simulation*, Report No. UMA-DAC-97/28, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain, **Euroconference on Parallel and Distributed Computing for Computational Mechanics**, Scotland, United Kingdom, April 1997.
93. F. R. Villatoro and J. I. Ramos, "On the Method of Modified Equations. I: Asymptotic Analysis of the Euler Forward Difference Method," Report ITI-98-2, Departamento de Lenguajes y Ciencias de la Computación, Universidad de Málaga, Málaga, Spain, 1998.
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96. F. R. Villatoro and J. I. Ramos, "On the Method of Modified Equations. IV: Numerical Techniques based on the Modified Equation for the Euler Forward Difference Method," Report ITI-98-7, Departamento de Lenguajes y Ciencias de la Computación, Universidad de Málaga, Málaga, Spain, 1998.
97. F. R. Villatoro and J. I. Ramos, "On the Method of Modified Equations. V: Asymptotic Analysis of and Direct-Corrections and Asymptotic Successive-Corrections Techniques for the Implicit Midpoint Method," Report ITI-98-9, Departamento de Lenguajes y Ciencias de la Computación, Universidad de Málaga, Málaga, Spain, 1998.
98. F. R. Villatoro and J. I. Ramos, "On the Method of Modified Equations. VI: Asymptotic Analysis of and Asymptotic Successive-Corrections Techniques for Two-Point, Boundary-Value Problems in ODE's," Report ITI-98-10, Departamento de Lenguajes y Ciencias de la Computación, Universidad de Málaga, Málaga, Spain, 1998.
99. J. I. Ramos, E. Soler and J. M. Troya, "Comparación de métodos para la resolución de una ecuación de reacción-difusión en un dominio de geometría compleja," Report ITI-98-20, Departamento de Lenguajes y Ciencias de la Computación, Universidad de Málaga, Málaga, Spain, 1998.
100. C. M. García-López and J. I. Ramos, "S-stability of piecewise-linearized and linearized θ -methods," Report ITI-99-05, Departamento de Lenguajes y Ciencias de la Computación, Universidad de Málaga, Málaga, Spain, 1999.
101. E.M. Ortigosa, L.F. Romero and J.I. Ramos, "Three-Dimensional Simulations of Spiral Waves in Reacting and Diffusing Media on DSM Computers," **6th Int'l Conf. on Applications of High-**

Performance Computers in Engineering (HPC'2000), Maui, Hawaii, January 26-28, 2000, Report No. UMA-DAC-00/01, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain.

102. E.M. Ortigosa, L.F. Romero and J.I. Ramos, "*Parallel Simulation of Spiral Waves in Reacting and Diffusing Media*," **Conference of PhD Students on Computer Sciences ((CS)²**, Szeged, Hungary, July 20-23, 2000, Report No. UMA-DAC-00/09, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain.
103. E.M. Ortigosa, L.F. Romero and J.I. Ramos, "*Spiral Waves in Three--Dimensional Excitable Media with Light--Sensitive Reaction*," **Chaos, Solitons and Fractals**, vol. 18, iss. 2, October 2003, pp. 365-373, Report No. UMA-DAC-03/10, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain.
104. E. M. Ortigosa, L.F. Romero and J.I. Ramos, "*Complex Patterns in Three-Dimensional Excitable Media with Advection*", **Chaos, Solitons and Fractals**, vol. 18, iss. 2, October 2003, pp. 375-384., Report No. UMA-DAC-03/11, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain.
105. E.M. Ortigosa, L.F. Romero and J.I. Ramos, "*Parallel Scheduling of the PCG Method for Banded Matrices Arising from FDM/FEM*," **J. of Parallel and Distributed Computing**, vol.63, december 2003, pp. 1243-1256, Report No. UMA-DAC-03/12, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain.
106. E.M. Ortigosa, L.F. Romero and J.I. Ramos, "*Paralelización de PCG con Matrices en Banda*," **XIV Jornadas de Paralelismo**, Leganés (Madrid), Spain, September 15-17, 2003, pp. 147-152., Report No. UMA-DAC-03/13, Departamento de Arquitectura de Ordenadores, Universidad de Málaga, Málaga, Spain.
107. J.I. Ramos and E. Nava, "*Informe anual: Modelado de materiales y propagación del sonido en materiales cerámicos porosos*," Report on the Project entitled "OPAC: Predicción y mejora del aislamiento acústico y térmico en los materiales de construcción", prepared for Fundación Innovarcilla, Bailén, Jaén, 5 May 2012, Universidad de Málaga, Málaga, Spain.
108. D. Moreno and J.I. Ramos, "*Informe anual: Análisis térmico de ladrillos*," Report on the Project entitled "OPAC: Predicción y mejora del aislamiento acústico y térmico en los materiales de construcción", Report No. GTCI-02-2012, prepared for Fundación Innovarcilla, Bailén, Jaén, 11 December 2012, Universidad de Málaga, Málaga, Spain.

SEMINARS, LECTURES, COURSE AND SYMPOSIA TALKS

1. "Flow Fields in Internal Combustion Engines," Seminar at the Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, New Jersey, November 15, 1978.
2. "Axisymmetric, Unsteady Calculations in a Piston-Cylinder Configuration," 1979 National Conference on Numerical Methods in Heat Transfer, University of Maryland, College Park, Maryland, September 24-26, 1979.
3. "Numerical Simulation of Four-Stroke, Firing, Spark-Ignition Engines," Seminar at the Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, January 30, 1980.
4. "Axisymmetric Flow Model With and Without Swirl in a Piston-Cylinder Arrangement with Idealized Valve Operation," 1980 SAE International Congress and Exposition, Detroit, Michigan, February 25-29, 1980.

5. "Axisymmetric Flow Model in a Piston-Cylinder Arrangement with Detailed Analysis of the Valve Region," 1980 SAE International Congress and Exposition, Detroit, Michigan, February 25-29, 1980.
6. "The Turbulent Flow Field in an Axisymmetric, Four-Stroke, Firing Engine Simulator," Seminar at the Division of Engineering, Brown University, Providence, Rhode Island, March 7, 1980.
7. "The Turbulent Flow Field in a Homogeneous Charge, Spark-Ignition Engine Simulator," Seminar at the Department of Mechanical Engineering, The Pennsylvania State University, University Park, Pennsylvania, March 12, 1980.
8. "The Turbulent Flow Field in an Axisymmetric Four-Stroke Firing Engine Simulator," Seminar at the Department of Mechanical Engineering, The Catholic University of America, Washington, D.C., March 20, 1980.
9. "Axisymmetric Flow Fields in Motored and Firing, Spark-Ignition Engines," Seminar at the Department of Mechanical and Aerospace Engineering, Princeton University, Princeton, New Jersey, May 16, 1980.
10. "Workshop on Combustion in Engines," Member of the Panel Discussion, Department of Mechanical Engineering, Imperial College of Science and Technology, London, England, July 7-8, 1980. (Invited).
11. "Numerical Studies of Turbulent, Confined Swirling Flows," Project SQUID Annual Meeting, Office of Naval Research, Massachusetts Institute of Technology, Cambridge, Massachusetts, October 14-16, 1980.
12. "The Recirculating Flow Field in a Two-Stroke, Motored Engine: Comparisons Between Theory and Experiments," ASME Winter Annual Meeting, Chicago, Illinois, November 16-21, 1980.
13. "The Numerical Solution of Enclosed Deflagrations," 1981 SIAM National Meeting, Rensselaer Polytechnic Institute, Troy, New York, June 8-10, 1981.
14. "Upstream and Downstream Boundary Conditions in Computational Fluid Dynamics," Fourth International Symposium on Computational Methods for Partial Differential Equations, Lehigh University, Bethlehem, Pennsylvania, June 30 - July 2, 1981. (Invited).
15. "A Numerical Study of Turbulent, Confined, Swirling Jets," Second International Conference on Numerical Methods in Laminar and Turbulent Flow, Venice, Italy, July 13-16, 1981.
16. "Exhaust Gas Emissions from a Swirl Stabilized Combustor," Session on Fire and Combustion Fundamentals, 20th National Heat Transfer Conference, Milwaukee, Wisconsin, August 2-5, 1981.
17. "A Numerical Study of One-Dimensional Chemically Reacting Flows," 18th Annual Meeting of the Society of Engineering Science, Brown University, Providence, Rhode Island, September 2-4, 1981.
18. "A Numerical Study of One-Dimensional Enclosed Flames," Second National Symposium on Numerical Methods in Heat Transfer, University of Maryland, College Park, Maryland, September 28-30, 1981.
19. "Application of the Finite Element Method to 1-D Flame Propagation Problems," AIAA 20th Aerospace Sciences Meeting, Orlando, Florida, January 11-14, 1982.
20. "Numerical Studies of Laminar Flame Propagation in Spherical Bombs," AIAA 20th Aerospace Sciences Meeting, Orlando, Florida, January 11-14, 1982.

21. "Numerical Studies of One-Dimensional Unsteady Flame Propagation," Tenth IMACS World Congress on System Simulation and Scientific Computation, Concordia University, Montreal, Canada, 8-13 August 1982.
22. "The Numerical Modelling of Swirling Flows in a Gas Turbine Combustor," International Symposium on Refined Modelling of Flows, Paris, France, September 7-10, 1982.
23. "Ignition of Confined Gaseous Mixtures by Hot Surfaces and Hot Wires," AIAA 21st Aerospace Sciences Meeting, Reno, Nevada, January 10-13, 1983.
24. "Turbulent Reacting Concentric Jets: Comparison Between PDF and Moment Calculations," Ninth International Colloquium on Dynamics of Explosions and Reactive Systems, Poitiers, France, July 4-8, 1983.
25. "The Application of Finite-Difference and Finite Element Methods to a Reaction-Diffusion System in Combustion," Third International Conference on Numerical Methods in Laminar and Turbulent Flow, Seattle, Washington, August 8-11, 1983.
26. "Turbulent Flow Field Calculations in an Internal Combustion Engine Equipped with Two Valves," Third International Conference on Numerical Methods in Laminar and Turbulent Flow, Seattle, Washington, August 8-11, 1983.
27. "Adaptive Finite Element Techniques for Reaction-Diffusion Equations," Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, September 14, 1983.
28. "Adaptive Finite Element Techniques for Combustion Problems," Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, October 4, 1983.
29. "Numerical Techniques for Reactive Flows," Department of Mechanical Engineering, Stevens Institute of Technology, Hoboken, New Jersey, November 9, 1983. (Invited).
30. "Numerical Methods for MHD Flows," Workshop on Liquid Metal Magnetohydrodynamics Code Development, Argonne National Laboratory, Argonne, Illinois, January 20, 1984. (Invited).
31. Lecture on "Modelling of Combustion Chambers and Furnaces" delivered in the course "Numerical Computation of Fluid Flow and Heat Transfer" which was organized by the Philadelphia Chapter of the ASME Heat Transfer Division and the Office of Continuing Professional Education of Drexel University, Department of Mechanical Engineering and Mechanics, Drexel University, Philadelphia, Pennsylvania, April 11, 1984. (Invited).
32. "An Adaptive Finite Element Method for Premixed Laminar Flames," Department of Mechanical Engineering, School of Engineering, University of Pittsburgh, Pennsylvania, January 31, 1985. (Invited).
33. "Numerical Studies of MHD Channel Flows," Liquid Metal Workshop, Argonne National Laboratory, Argonne, Illinois, 18-19 June 1985. (Invited).
34. "Multicomponent Gas Bubble Dynamics in Glass Melts," Fourth International Conference on Numerical Methods in Laminar and Turbulent Flow, University College of Swansea, Swansea, United Kingdom, 9-12 July 1985.
35. "Propagation of Reacting Waves," Eleventh IMACS World Congress on System Simulation and Scientific Computing, University of Oslo, Oslo, Norway, 5-9 August 1985.
36. "Numerical Studies of Wave Propagation Problems," Eleventh IMACS World Congress on System Simulation and Scientific Computing, University of Oslo, Oslo, Norway, 5-9 August 1985.

37. "Multidimensional Spray Simulation," Workshop on Rotary Engine Technology, NASA Lewis Research Center, Cleveland, Ohio, October 25, 1985. (Invited).
38. "Two-Dimensional Modelling of Combustion in Spark-Ignition Engines," IV Congreso Nacional de Ingeniería Mecánica (Fourth National Symposium on Mechanical Engineering), Madrid, Spain, 18-20 December 1985.
39. "A Single-Point Probability Density Function Formulation of Turbulent Chemically Reacting Flows," International Workshop on the Gas Flame Structure, Novosibirsk, USSR, 27-31 July 1986. (**Invited**).
40. "Numerical Methods for Reaction-Diffusion Equations," First World Congress on Computational Mechanics, Session C.2. - Combustion Phenomena II, The University of Texas at Austin, Austin, Texas, 22-26 September 1986. (Invited).
41. "Numerical Methods for Problems with Steep Moving Fronts," Escuela Técnica Superior de Ingenieros de Telecomunicación (Department of Electrical Engineering), Madrid Polytechnic University, Madrid, Spain, 9 January 1987.
42. "Numerical Methods for Fluid Mechanics and Combustion Applications," Centro para el Desarrollo Tecnológico Industrial, Ministry of Industry and Energy, Madrid, Spain, 1 June 1987.
43. "Mathematical Modelling of Liquid Curtains and Rotary Engines," Escuela Técnica Superior de Ingenieros Aeronáuticos (Department of Aeronautics), Madrid Polytechnic University, Madrid, Spain, 3 June 1987.
44. "Spray Penetration, Vaporization and Mixing in Diesel Engines," International Symposium on Heat and Mass Transfer in Gasoline and Diesel Engines, XIXth International Centre for Heat and Mass Transfer, Dubrovnik, Yugoslavia, 25 August 1987.
45. "Wankel Engine Modelling," International Symposium on Heat and Mass Transfer in Gasoline and Diesel Engines, XIXth International Centre for Heat and Mass Transfer, Dubrovnik, Yugoslavia, 27 August 1987.

The following *invited* lectures (nos. 46-53) were delivered at the "Advanced Course on Computer Simulation of Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines," XIXth International Centre for Heat and Mass Transfer, held in Dubrovnik, Yugoslavia.

46. "Modelling Heat and Mass Transfer in Spark-Ignition Engines: From Thermodynamic Models to Multidimensional Calculations," 31 August 1987.
47. "One- and Multidimensional Models of Spark-Ignition Engines," 31 August 1987.
48. "One- and Multidimensional Models of Spark-Ignition Engines," 31 August 1987.
49. "Modelling Heat and Mass Transfer in Diesel Engines: From Thermodynamic Models to Multidimensional Calculations," 1 September 1987.
50. "Multidimensional Models of Diesel Engines," 1 September 1987.
51. "Modelling Heat and Mass Transfer in Rotary Engines," 2 September 1987.
52. "Modelling Heat and Mass Transfer in Reciprocating and Rotary Engines," 3 September 1987.
53. "Computer Simulation of Fluid Flow, Heat and Mass Transfer, and Combustion in Reciprocating Engines," Open Forum with Drs. N.C. Markatos (Athens National Technical University, Greece) and A.P. Watkins (University of Manchester Institute of Science and Technology, United Kingdom), 4 September 1987.

54. "Adaptive Finite Element and Hermitian Operator Methods for Reaction-Diffusion Equations," Institute of Nuclear Sciences "Boris Kidric" - Vinca, Belgrade, Yugoslavia, 8 September 1987. (Invited).
55. "Fluid Dynamics of Liquid Curtains," Institute of Nuclear Sciences "Boris Kidric" - Vinca, Belgrade, Yugoslavia, 8 September 1987. (Invited).
56. "Modelling of Internal Combustion Engines," Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Yugoslavia, 9 September 1987. (Invited.)
57. "Turbulent Combustion Models for Premixed and Non-Premixed Flows - I," Los Alamos National Laboratory, Los Alamos, New Mexico, 12 November 1987. (Invited.)
58. "Turbulent Combustion Models for Premixed and Non-Premixed Flows - II," Los Alamos National Laboratory, Los Alamos, New Mexico, 13 November 1987. (Invited).
59. "Modelling of Rotary Engines," Rotary Engine Division, John Deere Technologies International, Wood-Ridge, New Jersey, 20 January 1988.
60. "Spark-Ignition Engine Modelling," Aula Magna, Facolta di Ingegneria, University of Naples, Naples, Italy, 20 June 1988. (Invited by the Associazione Termotecnica Italiana, Seminario "Modelli di Combustione per Motori per Autotrazione").
61. "Diesel Engine Modelling," Aula Magna, Facolta di Ingegneria, University of Naples, Naples, Italy, 20 June 1988. (Invited by the Associazione Termotecnica Italiana, Seminario "Modelli di Combustione per Motori per Autotrazione").
62. "Multidimensional Modelling of Reciprocating Engines," Aula Magna, Facolta di Ingegneria, University of Naples, Naples, Italy, 21 June 1988. (Invited by the Associazione Termotecnica Italiana, Seminario "Modelli di Combustione per Motori per Autotrazione").
63. "Adaptive Finite-Difference and Finite Element Methods for Chemically Reacting Flows," International Conference on Numerical Methods in Flow Analysis, Okayama, Japan, September 5-8, 1988. (Invited.)

The following *invited* lectures (nos. 64-78) were delivered at the Dipartimento di Energetica, Facolta di Ingegneria, Universita degli Studi de L'Aquila, Localita Monteluco, Italy, as part of a 45-hour short course entitled "Combustion and Internal Combustion Engines."

64. "Air Standard Cycles and Equilibrium Charts." January 17, 1989.
65. "Spark-Ignition Engine Models." January 18, 1989.
66. "Turbulence and Turbulent Combustion." January 18, 1989.
67. "Multizone Models of Spark-Ignition Engines - 1." January 18, 1989.
68. "Multizone Models of Spark-Ignition Engines - 2." January 19, 1989.
69. "Multizone Models of Spark-Ignition Engines - 3." January 19, 1989.
70. "Quench, Squish and Swirl Effects on Engine Combustion." January 19, 1989.
71. "Diesel Engine Modelling." January 20, 1989.
72. "Droplet Vaporization and Combustion." January 20, 1989.
73. "Multizone Models of Diesel Engine Combustion - 1." January 20, 1989.

74. "Multizone Models of Diesel Engine Combustion - 2." January 23, 1989.
75. "Multizone Models of Diesel Engine Combustion - 3." January 23, 1989.
76. "Engine Emissions." January 24, 1989.
77. "Soot Emissions and Radiative Heat Transfer." January 24, 1989.
78. "Gas Exchange Processes." January 25, 1989.
79. "Finite Element Methods for One-Dimensional Combustion Problems," Seventh International Conference on Finite Element Methods in Flow Problems, The University of Alabama in Huntsville, Huntsville, Alabama, 3-7 April 1989. (Invited).
80. "Dynamics of Annular Liquid Jets and Liquid Membranes," Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, 3 May 1989.

The following *invited* seminars (nos. 81-88) were delivered at the Dipartimento di Ingegneria Meccanica, II Università degli Studi di Roma "Tor Vergata," Rome, Italy.

81. "Models of Turbulent Combustion." 20 July 1989.
82. "Heat Transfer in Internal Combustion Engines." 21 July 1989.
83. "Multizone Models of Diesel Engine Combustion." 24 July 1989.
84. "Nitric Oxide Formation: Chemical Kinetics and Modelling." 25 July 1989.
85. "Chemistry and Models of Soot Formation." 26 July 1989.
86. "Multidimensional Models of Engine Combustion." 26 July 1989.
87. "Sensitivity Analysis: Theory and Applications." 27 July 1989.
88. "Computer-Controlled Reciprocating Engines." 27 July 1989.
89. "Applied Mathematics, Scientific Computation and Physico-Mathematical Modelling," F. Informática/E.T.S.I. Telecomunicación, Universidad de Málaga, Málaga, Spain, 1 June 1990.

The following *invited* lectures (nos. 90-97) were delivered at the Facultad de Informática/Escuela Técnica Superior de Ingenieros de Telecomunicación, Universidad de Málaga, Málaga, Spain, as part of a 20-hour advanced short course entitled "Nonlinear Dynamics, Bifurcations, and Chaos."

90. "Oscillations, Perturbation Methods, and Resonances. I," 18 June 1990.
91. "Oscillations, Perturbation Methods, and Resonances. II," 19 June 1990.
92. "Lyapunov Stability." 20 June 1990.
93. "Maps, Differential Topology, and Structural Stability." 20 June 1990.
94. "Bifurcations." 21 June 1990.
95. "Hamiltonian Systems." 21 June 1990.

96. "Chaos." 21 June 1990.
97. "Numerical Methods and Continuation." 22 June 1990.
98. "Lagrangian, Characteristic and Adaptive Finite Difference Methods for Inviscid Liquid Membranes," Second World Congress on Computational Mechanics, University of Stuttgart, Federal Republic of Germany, 27 August 1990.
99. "Adaptive and Non-Adaptive Hermitian Operator Methods for Combustion Phenomena," Second World Congress on Computational Mechanics, University of Stuttgart, Federal Republic of Germany, 31 August 1990. (*Invited.*)
100. "Sturm-Liouville Theory for Second-Order Ordinary Differential Equations", Two-hour lecture delivered in the course "Linear Systems" taught to third-year students in the Escuela Técnica Superior de Ingenieros de Telecomunicación, Universidad de Málaga, Málaga, Spain, 18 December 1990. (*Invited.*)
101. "Simulation of Global Volcanic Systems: Numerical and Computer Implementation Challenges", *Workshop on Prospects for the Simulation of Volcanic Eruptions, International Conference on Active Volcanoes and Risk Mitigation*, Naples, Italy, 28 August 1991. (*Invited.*)
102. "Soot, Radiation, and Conjugate Heat Transfer in RQL and LPP Combustors," *HSR (High Speed Research) Analytical Combustion Research Workshop*, Combustion Technology Branch, NASA Lewis Research Center, Cleveland, Ohio, 9 September 1991. (*Invited.*)
103. "Domain-Adaptive Methods of Lines for Inviscid Annular Liquid Jets," *Athens Interdisciplinary Olympia 91, First International Symposium on Methods of Lines, Surfaces and Dimensional Reduction*, Athens, Greece, 14 November 1991. (*Invited.*)
104. "Domain-Adaptive Techniques for Two-Dimensional, Time-Dependent, Chemically Reactive Flows," *SIAM Fourth International Conference on Numerical Combustion*, St. Petersburg Beach, Florida, 4 December 1991. (*Invited.*)
105. "Domain-Adaptive Finite Difference Methods for Annular Liquid Jets", Symposium on Science and Supercomputing, Winners of Cray Research, Inc.'s 1991 Research Awards, Pittsburgh Supercomputing Center, Pittsburgh, Pennsylvania, 15 April 1992. (*Invited.*)
106. "Métodos de Diferencias Finitas y Elementos Finitos para el Estudio de Bombas Magnetohidrodinámicas," *VII Symposium Nacional de la Unión Científica Internacional de Radio*, Torremolinos, Málaga, Spain, 24 September 1992.
107. "One-Dimensional, Time-Dependent Ascent of Magma along the Volcanic Conduits," Dipartimento di Scienze della Terra, Università degli Studi di Pisa, Pisa, Italy, 28 May 1993. (*Invited.*)
108. "Magma Model Development," Project Review Meeting, "Magma and Lava Flow Modeling and Fine Structure and Plumbing System Definition aimed at Volcanic Hazard Assessment at Etna", Commission of the European Communities, Contract EV5V-0190, Consiglio Nazionale delle Ricerche, Rome, Italy, 22 November 1993. (*Invited.*)
109. "Lava Model Development: Three-Layer Lava Flow Model," Project Review Meeting, "Magma and Lava Flow Modeling and Fine Structure and Plumbing System Definition aimed at Volcanic Hazard Assessment at Etna", Commission of the European Communities, Contract EV5V-0190, Consiglio Nazionale delle Ricerche, Rome, Italy, 22 November 1993. (*Invited.*)
110. "Asymptotic Methods and Adaptive Finite Difference Techniques for the Study of Combustion in Heterogeneous Chemical Reactors," Simposio Internacional sobre "Modelado de Sistemas en

- Oceanografía, Climatología y Ciencias Medioambientales: Aspectos Matemáticos y Numéricos" , Torremolinos, Spain, 26 January 1994. (Invited).
111. "Simulación numérica del ascenso de magmas en volcanes," Curso de Verano 1996 "Supercomputación en Ciencia e Ingeniería", Fundación General de la Universidad Complutense, Aguadulce, Almería, Spain, 3 July 1996. (Invited).
 112. "Grupo de Investigación: Técnicas Computacionales en Ingeniería," Jornadas de I+D, E. T. S. Ingenieros Industriales, Universidad de Málaga, Málaga, Spain, 13 March 1997.
 113. "Perturbaciones Periódicas de Bifurcaciones de Hopf en Chorros Anulares con Transferencia de Masa," No-lineal 97, U.N.E.D., Avila, Spain, 10 April 1997. (Invitado).
 114. "Exact-Factorization, Compact Methods for Multidimensional Heat Transfer: Application to Combustion," *International Symposium on Advances in Computational Heat Transfer*, International Centre for Heat and Mass Transfer, Cesme, Turkey, 27 May 1997.
 115. "An Adaptive Method for Heat Transfer in Annular Liquid Jets," *International Symposium on Advances in Computational Heat Transfer*, International Centre for Heat and Mass Transfer, Cesme, Turkey, 30 May 1997.
 116. "Two-Dimensional Simulations of Magma Ascent in Volcanic Conduits," *Tenth International Conference on Numerical Methods in Laminar and Turbulent Flow*, University of Wales, Swansea, United Kingdom, 22 July 1997.
 117. "Iterative Factorization Techniques for Multidimensional Reaction-Diffusion Equations," *Fifteenth IMACS World Congress on Scientific Computation, Modelling and Applied Mathematics*, Berlin, Germany, 29 August 1997.
 118. "Mass Transfer in Annular Liquid Jets," *International Symposium on Liquid-liquid Two-Phase Flow and Transport Phenomena*, International Centre for Heat and Mass Transfer, Antalya, Turkey, 5 November 1997.
 119. "Mesa Redonda with Professors Franco L. Preparata (Computer Science Department, Brown University, USA) and Luis Vázquez (Universidad Complutense de Madrid) and Dr. Klaus Stüeben (GMD, Germany)," Curso de Verano 1999 "La supercomputación: Aplicaciones científicas y tecnológicas", Fundación General de la Universidad Complutense, San Lorenzo de El Escorial, Madrid, Spain, 23 August 1999. (Invited).
 120. "Domain-decomposition methods for reaction-diffusion equations in complex geometries," Curso de Verano 1999 "La supercomputación: Aplicaciones científicas y tecnológicas", Fundación General de la Universidad Complutense, San Lorenzo de El Escorial, Madrid, Spain, 27 August 1999. (Invited).
 121. "Asymptotic analysis of compound, hollow, annular liquid jets," Third International Conference on Advances in Fluid Mechanics AFM 2000, Montreal, Canada, 25 May 2000.
 122. "CFD in academia: Issues and students' training," *Workshop on the application of CFD in the automotive industry: where do we want to be and how to get there?*, organized by Michigan State University and the National Science Foundation, Michigan State University, East Lansing, Michigan, 15 June 2000. (Invited).
 124. "Interaction between gases and liquids in hollow, compound jets at low Reynolds numbers," *International Symposium on Multiphase Flow and Transport Phenomena*, International Centre of Heat and Mass Transfer, Antalya, Turkey, 7 November 2000.

125. "Flapping motions of planar liquid sheets induced by gaseous heats and mass transfer," *International Symposium on Multiphase Flow and Transport Phenomena*, International Centre of Heat and Mass Transfer, Antalya, Turkey, 9 November 2000.
126. "Grupo de Investigación: Técnicas Computacionales en Ingeniería," Jornadas de I+D+I, E. T. S. Ingenieros Industriales, Universidad de Málaga, Málaga, Spain, 25 April 2002.
127. "Second-order accurate finite difference methods for singularly-perturbed ODE's," *An International Conference on Boundary and Interior Layers: Computational & Asymptotic Methods*, ONERA, Toulouse, France, 8 July 2004.
128. "A linearly-implicit, approximate factorization technique for singularly perturbed multidimensional advection-diffusion-reaction equations," *An International Conference on Boundary and Interior Layers: Computational & Asymptotic Methods*, ONERA, Toulouse, France, 8 July 2004.
129. "Dinámica no lineal de ondas espirales," Ciclo de conferencias "Disfrutando con la Física", Sala de Juntas, E. T. S. Ingenieros Industriales, Universidad de Málaga, 20 April 2005.
130. "Modelling of plastic optical fibers," ICCHMT05: Fourth International Conference on Computational Heat and Mass Transfer, 17-20 May 2005, Ecole Nationale Supérieure, Paris-Cachan, Session S2C: Complex Systems, 17 May 2005.
131. "Relaxation phenomena in anisotropic reactive media," ICCHMT05: Fourth International Conference on Computational Heat and Mass Transfer, 17-20 May 2005, Ecole Nationale Supérieure, Paris-Cachan, Session PS2C: Plasma/Diffusion, 18 May 2005.
132. "Simulaciones numéricas del proceso de fabricación de fibras ópticas poliméricas, curado de polímeros, y fenómenos de explosión y extinción," Curso de Verano 2007 "Supercomputación", Fundación General de la Universidad de Málaga, Ronda, Málaga, Spain, 5 July 2007. (Invited).
133. Plenary Lecture: "Linearization methods for nonsmooth ordinary differential equations," 15:30-16:25, 13 June 2008, Eighth International Conference on Computational and Mathematical Methods in Science and Engineering, La Manga del Mar Menor, Murcia, Spain, 13-17 June 2008. (Invited).
134. J. I. Ramos, "Acústica de medios débilmente no lineales", 42^a Congreso Español de Acústica, Encuentro Ibérico de Acústica, EAA Simposio Europeo de Acústica Ambiental y Edificación Acústicamente Sostenible, 42nd Tecniacustica Cáceres 2011, 42nd Spanish National Congress on Acoustics-Iberian Encounter on Acoustics-EAA (European Acoustics Association) Symposium on Environmental Acoustics and on Buildings Acoustically Sustainable, Session on Acústica Física y Procesado de Señales, Paper no. AFS010, Cáceres, Spain, 28 October 2011.
135. J. I. Ramos, "Acoustics of the Lagrangian-averaged 1D compressible Euler equations", *Acústica 2012, VIII Congreso Iberoamericano de Acústica, VII Congreso Ibérico de Acústica, XLIII Congreso Español de Acústica Tecniacustica 2012*, Session on Física Acústica, Paper No. 139, Evora, Portugal, 3 October 2012.
136. J. I. Ramos, "Effects of the boundary conditions on the propagation of pressure waves governed by a one-dimensional Lighthill-Westervelt equation", *Tecniacustica 2013, 44th Spanish Congress on Acoustics, Iberian Meeting on Acoustics, EAA European Symposium on Environmental Acoustics and Noise mapping*, Session on Physical Acoustics, Paper no. AFS-0 001.C.I., Valladolid, Spain, 2 October 2013. (Invited).
137. J. I. Ramos, "Effects of time delay on one-dimensional nonlinear acoustics", *Tecniacustica 2013, 44th Spanish Congress on Acoustics, Iberian Meeting on Acoustics, EAA European Symposium on Environmental Acoustics and Noise mapping*, Session on Physical Acoustics, Paper no. AFS-0 002.C.I., Valladolid, Spain, 2 October 2013. (Invited).

138. J. I. Ramos, "The one-dimensional lossy Lighthill-Westervelt equation: Effects of boundary conditions and discretization on acoustic wave propagation", Paper R14_3. *Nonlinear Acoustics, 7th Forum Acusticum*, 7-12 September 2014, Krakow, Poland, 10 September 2014.
139. J. I. Ramos, "Heat transfer processes in film casting of compressible polymers", Paper IHTC15-9814/FCV-F-325, *Session CMB1: Combustion (1), The 15th International Heat Transfer Conference, IHTC-15*, 10-15 August 2014, Kyoto, Japan, 13 August 2014.
140. J. I. Ramos, "Relaxation phenomena in reaction-diffusion processes", Paper IHTC15-9830/CMB-J-525, *Session CMB1: Combustion (1), The 15th International Heat Transfer Conference, IHTC-15*, 10-15 August 2014, Kyoto, Japan, 15 August 2014.
141. J. I. Ramos, *Keynote Lecture: "Local linearization methods in space and time for nonlinear wave propagation"*, *6th International Conference on Modeling, Simulations and Applied Optimization, ICMSAO'15*, 27 May 2015, Yildiz Technical University, Istanbul, Turkey (**Invited.**)
142. J. I. Ramos, "Numerical simulation of liquid semi-crystalline planar film casting processes", Paper no. 21, *Session ST12: Heat and Mass Transfer, Congresso de Métodos Numéricos em Engenharia (CMN2015)*, Lisbon, Portugal, 29 June 2015.
143. J. I. Ramos, "Relaxation phenomena in nonlinear acoustics", Paper no. 201, *Session T06.SS03: Nonlinear Acoustics and Vibration, The 22nd International Congress on Sound and Vibration*, Florence, Italy, 16 July 2015.
144. J. I. Ramos, "Flux-limited relativistic heat and mass transfer", Paper no. TFESC-12993, *Session Fundamentals in Heat, Mass and Momentum Transfer IV, The First Thermal and Fluid Engineering Summer Conference*, 9-12 August 2015, The Roosevelt Hotel, New York, USA, 11 August 2015.
145. J. I. Ramos, "Film drawing of liquid semi-crystalline polymers", Paper no. TFESC-12994, *Session Fundamentals in Heat, Mass and Momentum Transfer IV, The First Thermal and Fluid Engineering Summer Conference*, 9-12 August 2015, The Roosevelt Hotel, New York, USA, 11 August 2015.
146. J. I. Ramos, "Superdiffusive Burgers-Taylor's kinks and nonlinear dispersive shock waves", Plenary Lecture, *No Lineal Málaga 2018, XI International Conference on Nonlinear Mathematics and Physics*, 12-15 June 2018, Friday, 15 June 2018. (Invited.)