CURRICULUM VITAE
(July 2016)

Name:
Sergio Rodolfo Idelsohn
Date and place of birth:
November 15, 1947, Paraná (Argentina)
Marital status:
Married; three offspring.
Nationality: Argentinean and Spanish

Education:
University Degree: Mechanical Engineer
                    National University of Rosario (Argentina) 1970

Postgraduate studies: Ph.D. in Applied Sciences,
                    Aeronautics and Spatial Laboratory of the University of Liege
                    (Belgium) 1974
                    Adviser: Prof. Fraeijs de Veubeke

Languages: Spanish, French, English

Research Interests:
Computational Mechanics, Finite Element Methods in Structural Dynamics, Fluid Mechanics and Heat Transfer.

Present Positions:

- **ICREA Research Professor** at the International Center for Numerical Methods in Engineering, University of Cataluña, Barcelona, Spain.
- **Senior Researcher** at the International Center for Numerical Methods in Engineering, University of Cataluña, Barcelona, Spain.

Professional Experience:
- 1968-1970 Teaching Assistant, Department of Mathematics, Universidad Nacional de Rosario. Argentina.
- 1970-1971 Research Assistant at the Computer Center, Universidad Nacional de Rosario. Argentina.
- 1971-1973 Scholarship from the Belgian Government to study with Prof. Fraeijs de Veubeke at the University of Liege .Belgium.
- 1973-1974 Research Assistant at the Aeronautics and Aerospatiale Lab**.**, University of Liege. Belgium.
- 1975-1976 System Analysis Professor, Universidad Tecnológica Nacional ,Rosario, Argentina..
- 1975-1981 Numerical Methods Professor, Depart. of Statistics, Universidad Nacional de Rosario, Argentina.
- 1978-2006 Computational Mechanics Professor, Applied Mechanics Department, Universidad Nacional de Rosario , Argentina

- 1979-1980 Visiting Researchers at the Aeronautics and Aerospatiale Lab. Univ. of Liege, Belgium. Through a post doctoral Scholarship from CONICET.
- 1981-2006: **Researcher at the CONICET** (National Council of Scientific and Technological Research of Argentina), **Investigador Superior** (High Researcher) working at INTEC, Santa Fe, Argentina.
- 1981-1996 **Mechanics Laboratory Director**, INTEC, Santa Fe, Argentina
- 1985-1987 **Director, Regional Center of Research and Development in Santa Fe, CERIDE, CONICET**, Santa Fe, Argentina.
- 1987-1988 (9 months) **Guest Professor at The Institute for Advanced Study in Princeton, New Jersey, USA.** To work at the School of Mathematics with Professor Luis Caffarelli.
- 1989-1990 (6 months) **Guest Professor at the University "Pierre et Marie Curie", Paris VI, France,** where he worked at the Numerical Analysis Laboratory with Professor Olivier Pironneau.
- 1991-2001 (6 months a year) **Guest Professor at the Polytechnic University of Catalunya**, Barcelona, Spain, where he worked at the International Center for Numerical Methods in Engineering, Barcelona, Spain, with Professor Eugenio Oñate.
- 2002-2005: Researcher at the "Ramon y Cajal Programme", Spanish Science and Technology System, working at the CIMNE, Barcelona, Spain.
- 2003-2005 **Director, Regional Center of Research and Development in Santa Fe, CERIDE (CONICET)**. Santa Fe, Argentina.
- 1989-2013: **Full-time Professor, Universidad Nacional del Litoral**, working at INTEC, Santa Fe, Argentina.
- 1996-2006 **Director, International Center for Computational Methods in Engineering (CIMEC)** at INTEC, (CONICET-Universidad Nacional del Litoral), Santa Fe, Argentina.
- 1991-present**: Professor at Numerical Methods in Engineering Masters**, Universidad Politécnica de Cataluña, Barcelona, Spain. Giving a post-graduate course on Numerical Methods in Fluid Mechanics.

Scientific Dissemination Activity:

- Editor of the Journal **"Métodos Numéricos para Cálculo y Diseño en Ingeniería".**
- Member of the Editorial Board: "**Computational Method in Applied Mechanics and Engineering**".
- Member of the Editorial Board: "**International Journal for Numerical Methods in Engineering**".
- Member of the Editorial Board: "**International Journal for Numerical Methods in Fluid**".
- Member of the Editorial Board: "**International Journal of Engineering Analysis and Design**"
- Member of the Editorial Board: **"International Journal of Forming Processes"**
- Member of the Editorial Board: "**Engineering Analysis**".
- Member of the Editorial Board**: "International Journal of Computation Application in Technology".**
- Member of the Editorial Board: "**Advances in Engineering Software and Workstations**"
- Member of the Editorial Board: "**Archives of Computational Methods in Engineering**"
- Member of the Editorial Board: "**International Journal for Computational Civil and Structural Engineering**"

- Member of the Editorial Board: "**Computational Methods in Engineering Science and Mechanics**"
- Member of the Editorial Board: "**Structural Engineering & Mechanics, An International Journal (SEM)**"
- Member of the Editorial Board: "**International Journal for Multiscale Computational Engineering**"
- Member of the Editorial Board: "**Interaction and Multiscale Mechanics: an International Journal**".
- Member of the Editorial Board: "**Asia Pacific Journal on Computational Engineering (APJCEN)**".

Professional Awards:

- The **"Bernardo Houssay Award**", to the best scientific research in Argentina, CONICET, 1987.
- The **"KONEX Award**" to the best five specialists of the last decade in Sciences and Technology in Electro Mechanic Engineering, Argentina, 1993
- **Fellow of the American Academy of Mechanics**, 1996
- The "**Academy of Sciences Award",** National Academy of Science, Argentina, 1997
- Fellows of the International Association of Computational Mechanics, 1998
- The **"O.C. Zienkiewicz IACM Award"**, International Association of Computational Mechanics, Vienna, Austria, 2002.
- The **"AMCA Award"** 2006 to an equilibrated activity in research, teaching and professional in Argentina. Asociación Argentina de Mecánica Computacional. Santa Fé, Argentina, 2006.
- The **"ELSEVIER-SCOPUS Award"** to the eight Argentinean Researchers most cited in Scientific International Journals in the last ten years. Buenos Aires, October 2007.
- The **"Emerald Award for Excellence"**. For the outstanding paper Award Winner at the Literati Network: "Validation of the particle finite element method (PFEM) for simulation of free surface flows" published in Engineering Computations, Barcelona, 2009.
- The **"SEMNI Award"** in recognition to a professional and international trajectory in the Numerical Methods in Engineering and in particular to the personal influence to the development and diffusion of these methods in the Hispanic speaking world. Barcelona, 2009.
- **ERC Advanced Grant 2009** to develop Real-Time computational mechanics in fluid mechanics problems. 2009-2014.
- **Personality of the year 2010.** Newspaper El Litoral, Santa Fe, Argentina, December 2010.
- The **"ECCOMAS Ludwig Prandtl Medal"**, awarded by the European Community on Computational Methods in Applied Sciences (ECCOMAS) for his outstanding and sustained contribution in the area of Computational Fluid Dynamics, September 2012.
- The **"Emerald Award for Excellence"**. The paper "A fast and accurate method to solve the incompressible Navier-Stokes equations" published in Engineering Computations has been selected by the journal's Editorial Team as the Outstanding Paper Award 2013.
- The **"IACM Computational Mechanics Award",** International Association of Computational Mechanics, Seoul, Korea, 2016.

Scientific Associations:

- Member of the American Academy of Mechanics.
- Member of the International Association of Computational Mechanics.
- Member of the Argentine Association of Computational Mechanics.
- **Member of the Executive Council of the International Association of Computational Mechanics** (1998-2020).
- **Secretary General of the International Association of Computational Mechanics**. (2002-2010).
- **Vice President of the International Association of Computational Mechanics** (2014-2018).
- Argentine Representative at the Assemble General of the International Union of Theoretical and Applied Mechanics (IUTAM) (1990-2012).
- **President of the "Asociación Argentina de Mecánica Computacional, AMCA."** (1985-2005)

Congress Organization:

- President of the Organizing Committee of the VI Latin American Congress on Computational Methods in Engineering and the First National Congress on Computational Mechanics, MECOM'85. October 1985, Paraná, Argentina.
- President of the Organizing Committee of the Second Congress of Researchers and Users of the Finite Element Methods, ENIEF 84, July 1984, Bariloche, Argentina.
- President of the Organizing Committee of a Workshop in February 1987, Santa Fe, Argentina with Prof. O.C. Zienkiewicz
- President of the Organizing Committee of the 5th. Congress of Researchers and Users of the Finite Element Methods, ENIEF 87, July 1987, Bariloche, Argentina.
- President of the Organizing Committee of the 6th. Congress of Researchers and Users of the Finite Element Methods, ENIEF 89, July 1989, Bariloche, Argentina.
- President of the Organizing Committee of the 7th. Congress of Researchers and Users of the Finite Element Methods, ENIEF 90, November 1990, Mar del Plata, Argentina.
- President of the Organizing Committee of the XII Iberian Latin American Congress on Computational Methods in Engineering and the Third National Congress on Computational Mechanics, MECOM'91, September 1991, Paraná, Argentina.
- Member of the International Consulting Board of the II World Congress of Computational Mechanics, August 1990, Stuttgart, Germany.
- Member of the Organizing and Editorial Committee of the II Pan American Congress of Applied Mechanics, January 1991, Valparaiso, Chile.
- Member of the International Scientific Committee of the "VIII International Conference on Finite Elements in Fluids" 20-24 September 1993, Barcelona, Spain.
- Vice Chairman of the IV Panamerican Congress of Applied Mechanics (PACAM IV), January 1995, Buenos Aires, Argentina.
- **Chairman, IV World Congress of Computational Mechanics**, (IV WCCM), July 1998, Buenos Aires, Argentina.
- **Chairman, First South-American Congress on Computational Mechanics** (MECOM 2002), October 28-31, Santa Fe-Paraná, Argentina.
- Honorary Chairman, **XIV Congress on Numerical Methods and their Applications ,** ENIEF 2004, November 8-11 San Carlos de Bariloche, Argentina

- Honorary Chairman, **VIII Congreso Argentino de Mecánica Computacional,** MECOM 2005, November 16-18 Buenos Aires, Argentina
- Honorary Chairman **XV Congress on Numerical Methods and their Applications** ENIEF 2006, November 07-10 Santa Fe, Argentina
- **Chairman of the V International Conference on Coupled Problem in Sciences and Engineering**- COUPLED PROBLEM 2013, June 17-19, Santa Eulalia, Ibiza, Spain.
- **Chairman of the First Pan American Congress on Computational Mechanics**- PANACM 2015, April 27-29, 2015, Buenos Aires, Argentina.
- **Chairman of the Second Pan American Congress on Computational Mechanics**- PANACM 2018, July 22-27, 2018, Ney York City, USA.

Advisory and Evaluation Committees:

- Member of the Advising Committee in Engineering Science and Technology of CONICET. 1985-1988.
- Member of the Advising Committee in Mathematics and Computation of CONICET. 1991-1993
- Member of the Technical Qualification Committee, CONICET. 1985-1986
- CONICET Regional Delegate in Santa Fe. 1985 –1987.
- Member of CONEAU Evaluation Committee for the evaluation of the Universidad Nacional de San Juan. 1997
- Member of the Qualification Committee, CONICET. 1999
- Coordinator of the Materials and Mechanical Technology area, National Agency of Scientific and Technological Promotion of Argentina. 1997-1999
- Director of the Post Graduate Committee, Faculty of Sciences and Hydraulic Resources, Universidad Nacional del Litoral - 1996-present
- Coordinator of the Ad-Hoc fellowships Committee, CONICET. 2000
- Member of the Ad-Hoc Projects Committee, CONICET. 2000-2001
- Member of the Ad-Hoc Evaluation of PID 2000 Projects Committee, National Agency of Scientific and Technological Promotion of Argentina. December 2001
- Vice president of the Advisory Committee of Civil, Mechanical and Electrical Engineering, CONICET. 2001-2003
- Member of the Evaluation Committee of the research activities of the National Technological University, Argentina. Minister of Science and Technology, 2013.

Consulting and Advisory Activity:

- Consultant, Atomic Energy National Commission, CNEA:
    * Radiology Protection Laboratory. 1984-1987.
    * High Pressure Experimental Circuit at the Ezeiza Atomic Center 1986-1988.
- Consultant, Argentine Air Force:
    * Aeronautical and Spatial Research Institute, IIAE, 1983-1987.
    * Dirección de Desarrollo Aeronaútico, 1984-1987.
    * INTESA (Integradora Aeroespacial Corporation), 1989.
    * Córdoba Propellers Plant, 1987-1988.
- Consultant. Argentine Nuclear Power Plants Company, ENACE,1985-1987.
- Consultant, Pescarmona Metallurgic Industries, IMPSA, 1985-1988.
- Consultant, Córdoba State Hydraulic Direction, 1987-1988.
- Consultant, Hydraulic Faculty, Universidad Nacional del Litoral, 1989.

- Consultant, SIDERCA Industries. 1989-1990.
- Consultant, Technologic Development Foundation (FUDETEC) 1991-1992.
- Consultant, National Committee of Atomic Energy (CNEA).Radiological Protection Laboratory. 1992-1993.
- Consultant, National Committee for University Evaluation and Accreditation (CONEAU). Evaluation of Universidad de San Juan (1997).
- Consultant, National Committee for the Evaluation for the University Evaluation and accreditation (CONEAU) Evaluation of the Master in Informatics (2000).
- Evaluator, Mechanical Engineering Program, Universidad Nacional de Colombia, Medellín, December 2002.
- Evaluator, Mechanical Engineering Program, Fundación para la Ciencia y la Tecnología, Ministerio de Ciencias y Enseñanza, Portugal. Lisbon, March 2003 and December 2004.
- Evaluator of the R+D+i of the Universidad Tecnológica Nacional, Argentina. May 2014.

RTD Projects and International Agreements:

- Responsible of the CONICET Research and Development Projects, PID:N° 9057/85", PID: N° 75000/88 and PID-BID N° 238 titled "Computational Methods in Solid Mechanics, Fluid Mechanics and Heat Transfer". 1985-1995.
- Responsible of the Research and Development Project "*Simulación Numérica de Procesos de Colada Continua*" PID/ BID III N° PMT-SID .1995-1998.
- Responsible of the Project *"Germen- Generación de Recursos básicos para la aplicación de Métodos Numéricos en tecnología mecánica", (PICT/97) N° 51, Agencia Nacional de Promoción Científica y Tecnológica* 1998-2000.
- Responsible of the Project "*PROA- Desarrollos en Mecánica Computacional utilizando técnicas de Programación Avanzada*" (PICT/99) Nro.12-06973, *Agencia Nacional de Promoción Científica y Tecnológica*. 1999-2002.
- Responsible of the Project "*FLAGS- Simulación numérica en gran escala de la interrelación entre el Flujo de Aguas Superficiales y el Flujo de Aguas Subterráneas*", (PID/99) Nro. 74, *Agencia Nacional de Promoción Científica y Tecnológica*. 1999-2002.
- Director of the Argentine Part of the International Agreement ALFA "Transatlantic University Industry Cooperation Network (TUCANO)" UNL- University of Birmingahm. 1997-1999.
- Director of the Argentine Part of the International Agreement ALFA " Multi-Media Techniques in Engineering Education" UNL- University of Graz. 1996-1999.
- Director of the Argentine Area of the International Agreement ALFA, "*Amélioration des Etudes en Mécanique*", UNL- Universidad Pierre et Marie Curie Paris. 1999-2000.
- Director of the Argentine Part of the International Agreement "Analysis of Numerical Solution Employed in Computational Mechanics" CONICET-National Science Foundation, USA, 1987-1992.
- Director of the Argentine Part of the International Agreement "Numerical Methods of the Problems for Mechanics of Flows" INTEC- *Institut National de Recherche en Informatique et Automatique,* within the framework of bi-national agreements between France and Argentina, 1986-1990.
- Director of the Argentine Part of the International Agreement "Computer Simulation of the behavior of Mechanics Systems" INTEC-*Laboratoire de Techniques Aeronautiques et Spatiales,* within the framework of bi-national agreements between Belgium and Argentina, 1987-1993.

- Director of the Argentine Part of the International Agreement "Numerical Analysis of Composite Structures", INTEC- *Laboratoire de Mecanique, Modelisation et Calcul de l'Université Pièrre et Marie Curie de Paris*, within the framework of CONICET-CNRS agreements. 1993-1995
- Responsible of the Argentine Part of the Bilateral Project: "Mathematics Applied to the Solution of Fluid-Structure Interaction Problems", within the framework of the Scientific Cooperation with Ibero-America Program (AECI). 2002-2004
- Responsible of the Project: ADEL, *"Nuevas herramientas para Análisis y Diseño de Estructuras Ligeras sometidas a cargas de viento"*. Duration: 2003-2006. Founded by the Sciences and Technological Minister of Spain.
- Responsible of the Project LAMBDA, *"Laboratorio virtual para el Análisis y simulación computacional de problemas de Multi-física Basados en ecuaciones Diferenciales Acopladas"*. Duration: 2004-2007. Founded by the Argentinean Agency of Scientific and Technologic Promotion
- Responsible of the Project *"PME-CLUSTER" "CLUSTER DEL LITORAL: Red de Laboratorios para la resolución de problemas de la física-matemática aplicados a la ingeniería"* Founded by the Argentinean Agency of Scientific and Technologic Promotion. 2004-2006.
- Responsible of the Project *"Mecánica Computacional en Problemas de Multi-física"* (PIP Nº 5271) Founded by CONICET. 2005-2007
- Responsible of the Project *"Simulación computacional de fenómenos de fractura en materiales utilizando metodologías de multiescala, PICT2005-34273"*. Founded by the Argentinean Agency of Scientific and Technologic Promotion, 2007-2010.
- Responsible of the Project: *"(Xpress) Desarrollo de un método para estudio de roturas de presas de escollera por sobre vertido combinando técnicas de elementos finitos y partículas". Founded by the "Ministerio de Educación y Ciencias de España"*. 2007-2010.
- Responsible of the Project: *"E-CAERO-European Collaborative Dissemination of Aeronautical research and applications"*. Included in the *"PLAN NAC. I+D 2008-2011"* of the *"Ministerio de Educación y Ciencias de España"*. (2008).
- Responsible of the Project: *"CIMNE-TDYN-Transferencia de los resultados de investigación de CIMNE en software para análisis y cálculo aeroelástico de velas en veleros"*. Founded by the "Ministerio de Educación y Ciencias de España". 2008-2010.
- Responsible of the Project: *"Internacionalización de la I+D+i desarrollada por CIMNE en Latino-América, EE UU, China y Singapur"*. Founded by the *"Ministerio de Ciencia e Innovación de España"*. 2009-2010.
- Responsible of the Project: "Real Time Computational Mechanics Techniques for Muti-Fluid Problems". **ERC (European Research Council) Advanced Grant. 2009-2014.**
- Responsible of the Project: FORECAST: "Assessment and Initial Steps for the Exploitation of Fast Simulation software for Casting Manufacturing Operations" H2020 - **ERC (European Research Council) Proof of Concept 2014-PoC, 664910**

Direction of Researchers, Fellows and Doctoral Thesis:

- Alberto Cardona: "Reduction Methods in Non Linear Problems" CONICET Fellowship 1981-1984. Assistant Researcher at CONICET.(1985-1989).
- Victorio Sonzogni: "Non Linear Behavior of Structures Submitted to Seismic Loads". Assistant Researcher at CONICET. (1981-1991).

- Mario Storti: "Analysis of Heat Transfer with Ablation Problems". CONICET Fellowship 1984-1989. Assistant Researcher at CONICET.(1990-1995). **Doctoral Thesis at the Universidad Nacional del Litoral, December 1990.**
- Norberto Nigro: "Adaptive Meshes and Multigrille Methods". CONICET Fellowship 1988-1993. **Doctoral Thesis at the Universidad Nacional de Córdoba. December 1993.** Assistant Researcher at CONICET 1995-1999.
- Marcela Goldschmit: "Multiphase Fluid Flow In Porous Media". CONICET Fellowship 1982-1985.). **Doctoral Thesis at the Universidad Nacional del Litoral, October 1996.** Co director Eduardo Dvorkin.
- Luis Crivelli: "Heat Transfer with Phase Change", CONICET Fellowship 1981-1985.
- Lino Costa: "Natural and Forced Convection in Viscous Fluid Flows", CONICET Fellowship 1981-1984.
- Ricardo Ponzo: "Solution of Coating Flows by Numerical Methods" CONICET Fellowship. 1982-1984.
- Ever Barbero: "Numerical Analysis of Composite Materials" CONICET Fellowship. 1984-1986.
- Mario D'Errico: "Transonic Flows Simulation by Finite Element Method", CONICET Fellowship 1985-1988.
- Jean Pierre Jeusette: "Numerical Analysis of Post Bucking Composite Materials" CONICET Fellowship 1986-1988.
- Horacio Antúnez: "Numerical Solutions of Forming Processes" CONICET Fellowhip 1986-1990. **Doctoral Thesis at the Universidad Nacional de Córdoba, December 1990.**
- Angel Antonielli: "Solutions of Biot Equations by Mixed Models" CONICET Fellowship 1986-1987.
- Daniel Cascales: "Navier Stokes Ecuations by Numerical Methods". Assistant Researcher at CONICET. 1988-1992.
- Carlos Baumann: "Numerical Solution of Transonic Compressible Flows" CONICET Fellowship 1988-1990.
- Ricardo Martinez: "Numerical Solutions of Fluids Flows with Turbulence" CONICET Fellowship 1990-1991.
- Jorge D'Elia: " Boundary Element Method for Potential flows" CONICET Fellowship 1992-1998. **Doctoral Thesis at the Universidad Nacional del Litoral, December 1997.**
- Gustavo Vellano: " Numerical Solution of Fluid Mechanic Problems" 1993.
- Ruperto Bonnet: "The DNL absorbing boundary condition. Application to wave problems". Latin American CONICET Fellowship 1995-1999. **Doctoral Thesis at the Universidad Nacional del Litoral, December 1998.** Co director Mario Storti.
- Marcelo Severino: "Segregation in continuos casting proceses with coupled solidification". CONICET Fellowship 1996 –1997.
- Facundo Del Pin: "Meshless Methods in fluid mechanics problems". CONICET Fellowship 2000-2003. **Doctoral Thesis at the Universidad Nacional del Litoral**. December 2003.
- Carlos Méndez: "Numerical models for two phases flows". CONICET Post Doctoral Fellowship, 2001-2003.
- Jose Risso Cardo: "Numerical models of emulsion in casting processes". CONICET Fellowship 2001–2003.
- Nestor Calvo: " 3D Mesh Generation Methods with n Surfaces Polyhedrons" **Doctoral Thesis at the Universidad Nacional del Litoral**, April 2005.

- Julio Marti: "Lagrangian Formulations in Fluid Mechanics". CONICET Fellowship 2003-2007. **Doctoral Thesis at the Universidad Nacional del Litoral**, May 2008. Co director Jorge D'Elia.
- Alejandro Limache "Fluid Mechanics Problems using Particle Methods" CONICET Research Assistant 2003-2010.
- Diego Milone, "Automatic speech recognition" CONICET Research Assistant 2003-2009.
- Romain Aubry "Incompressible Lagrangian Fluid Flow with Thermal Coupling". **Doctoral Thesis at Polytechnic University of Catalonia**. March 2006. Co director Eugenio Oñate.
- Ricardo Prado: "Desarrollo de un Código de Integración Viscosa-Inviscida Orientado a Turbomaquinaria" **Doctoral Thesis at the Universidad de Buenos Aires**, May 2007. Co director Mario Storti.
- Lisandro Dalcín "Técnicas para cálculo distribuido de alto desempeño en mecánica computacional de fuidos". **Doctoral Thesis at the Universidad Nacional del Litoral**, Junio 2008. Co-director Mario Storti.
- Miguel Angel Celigueta "Erosion problems using Particle Methods". CIMNE research assistant. 2004- present. Co director Eugenio Oñate.
- Monica De Mier " Multiphase fluid using Particle methods". **Doctoral Thesis at Polytechnic University of Catalonia**. July 2010. Co director Eugenio Oñate.
- Pavel Ryzhakov "A monolithic Lagrangian approach for fluid-structure interaction problems". **Doctoral Thesis at Polytechnic University of Catalonia**. July 2010. Co directors: Eugenio Oñate and Riccardo Rossi.
- Kazem Kamran "A compressible lagrangian framework for the simulation of underwater implosion problems". **Doctoral Thesis at Polytechnic University of Catalonia**. July 2013. Co directors: Eugenio Oñate and Riccardo Rossi.
- Enrique Ortega "Development and applications of the Finite Point Method to compressible aerodynamics problems". **Doctoral Thesis at Polytechnic University of Catalonia**. May 2014. Co director: Eugenio Oñate.
- Pablo Becker "An enhanced Particle Finite Element Method with special emphasis on landslides and debris flows ". **Doctoral Thesis at Polytechnic University of Catalonia**. May 2015. Co director: Eugenio Oñate.

Talks and Lectures:

- Ph. D. Disertation: "*Analyses Statique et Dynamique des Coques par la Methode des Elements Finis*".October 1974, University of Liege (Belgium).
- Paper: "*A Conforming Finite Element for the Analysis of Viscous Incompressible Fluid Flow*". 3rd. International Conference on Finite Element in Water Resources, University of Mississippi, Oxford, May 1980.
- Invited Lecturer "*Development of a Finite Element Technique for the Navier-Stoke Equations*". First International Fluid Mechanics Winter Seminar, Santa Fe, August 1981.
- Invited Lecturer: "*Solución Numérica de las Ecuaciones de Navier-Stoke y Boussines por el Método de los Elementos Finitos*" Seminar of Computational Methods, Comité Argentino de Transferencia de Calor y Materia, Buenos Aires, May 1982.
- Paper: "*El Sistema SAMCEF y su Desarrollo Actual en el Instituto de Desarrollo Tecnológico para la Industria Química. III Congreso Latinoamericano sobre Métodos Computacionales en Ingeniería*". Buenos Aires, May 1982.

- Paper: "*Measurement of Magnification Factors for Interactive Surface Flow by Speckle Photography*". VII International Conference on Experimental Stress Analysis. Haifa, Israel, August 1982.
- Paper: "*Coherent Optics Techniques Applied to the Evaluation of Stress Intensity Factors for Internally Pressurized Cylinders with Surface Flows*". VII International Conference on Experimental Stress Analysis. Haifa, Israel, August 1982.
- Invited Lecturer: "*Métodos de Reducción en el Análisis Dinámico de Estructuras*". Seminar of Mathematics Techniques in Engineering. Comité Argentino de Transferencia de Calor y Materia, Buenos Aires, October 1982.
- Invited Lecturer: "*Análisis de la Fusión en Barras de Combustible Nuclear Originadas por Sobrecargas Térmicas Accidentales*". Seminar on the Stefan Problems and Applications, Rosario, July 1983.
- Invited Lecturer: "*Análisis Dinámico de Estructuras por Métodos de Doble Discretización*". Primer Encuentro Nacional de Investigadores y Usuarios del Método de los Elementos Finitos, Bariloche, July 1983.
- Invited Lecturer: "*Aplicación del Método de los Elementos Finitos a Algunas Ecuaciones de la Mecánica*". Segundo Seminario Latinoamericano de Matem\`atica Aplicada, Santa Fe, July 1983.
- Invited Lecturer: "*Aplicaciones de la Mecánica Computacional*", "II Encuentro Nacional de Investigador y Usuarios del Método de Elementos Finitos", Bariloche, July 1984.
- Invited Lecturer: "*Aplicaciones del Método de Elementos Finitos a Sistemas con Cambio de Fase*". "Seminar on Computacional Methods", Comité Argentino de Transferencia de Calor y Materia, Buenos Aires, November 1984.
- Invited Lecturer: "*Uso y Aplicaciones del Método de los Elementos Finitos en la Ingeniería*". "Refreshing Seminar on Civil Engineering", Universidad de Salta. December 1984.
- Invited Lecturer: "*Les Méthodes de Réduction Dans L'Analyse Dynamique des Structures*". Mechanics Institute, University of Liege. (Belgium), October 1984.
- Paper: "*A Load-Dependent Basis for Reduced Nonlinear Structural Dynamics*". Symposium on Advances and Trends in Structures and Dynamics. Washington D.C., October 1984.
- Paper: "*Métodos de Reducción Aplicados al Análisis No Lineal de Estructuras*". Fifth Latin American Congress on Computational Methods in Engineering. Salvador, Brasil, November 1984.
- Paper: "*Análisis de Problemas Termohidraúlicos de Cañerías Utilizando el Método de Elementos Finitos*". Tercer Simposio Brasilero sobre Tuberías y Vasos de Presión". Salvador, Brasil, October 1984.
- Invited Lecturer: "*Los Métodos de Reducción para Resolver Problemas no Lineales Modelizados por Elementos Finitos*". ENIEF 85, Bariloche, July 1985.
- Paper: "*Reduction Methods for Non-Linear Thermal Problems*". First World Congress on Computational Mechanics. Texas, Austin, October 1986.
- Invited Lecturer: "*Métodos de Reducción para la Solución de Problemas No-Lineales*". E.T.S. de Ingenieros, Canales y Puertos. Universidad de Barcelona, Barcelona, España. October 1986.
- Invited Lecturer; "*Les Methodes de Reduction pour la Solutions de Certains Problems Nonlineaires*". INRIA Sophia-Antipolis, Nice, France, June 1987.
- Invited Lecturer: "*Upwind Parameters for the Numerical Solution of Fluid Flow Problems*". Aerospace and Mechanical Dept. University of Colorado in Boulder, USA, May 1988.

- Invited Lecturer: "*Análisis Numérico de Flujos Transónicos en Tuberías de Sección Variable*" I Simposio Latinoamericano sobre Tuberías y Vasos de Presión, SIBRAT 88, Salvador, Bahía, Brasil, October 1988.
- Invited Lecturer: " *A Petrov Galerkin Technique for the Solution of Transonic and Supersonic Flows"* For graduate students of the Wessex Institute of Technologgy, Southampton, England, February 1990.
- Invited Lecturer: "*Une Méthode de Décentrage basée sur de Principes Variationnels. Application a des Problemes des Fluides Compressibles et Extrusion des Metaux*".University of Paris VI, France, February 1990.
- Invited Lecturer: "*Técnicas Upwind via Principios Variacionales*".Department of Mathematics, Universidad Autónoma de Madrid, Spain, February 1990.
- Invited Lecturer: "*Métodos Upwind para Problemas de Convección-Difusión utilizando Principios Variacionales*", Escuela Técnica Superior de Ingenieros de Caminos, Canales y Puertos de la Universidad Politécnica de Catalunia, Barcelona, Spain, March 1990.
- Invited Talk: "*Technique de Décentrage via Principes Variationnels*". Institute de Recherche en Informatique et Automatique (INRIA), Sophia Antipolis, France, May 1990.
- Invited Lecturer "*Techniques de Décentrage (Upwind) basée sur des Principes Variationnels. Applications à des Problemes de Fluides Compressibles*". University of Liège, Belgium, March 1990.
- Paper: "*Upwind Via Variational Principles (UVVP) For the Compressible Flow Euler Equations*".Second World Congress of Computational Mechanics. Stuttgart, Germany August 1990.
- Paper: "*Improving the Rate of Convergence to the Steady Solutions of the Euler Equations using a Preconditioning Mass Matrix*" Second World Congress of Computational Mechanics. Stuttgart, Germany August 1990.
- Paper: "*A Petrov-Galerkin Technique for the Solution of Transonic and Supersonic Flows*". Second World Congress of Computational Mechanics. Stuttgart, Germany August 1990.
- Paper: "*Use of Pseudo-Concentrations in the Analysis of Transient Metal Forming Processes*". Second World Congress of Computational Mechanics. Stuttgart, Germany August 1990.
- Paper: "*Streamline Upwind Petrov-Galerkin Concept Via Variational Principles*". Second Pan American Congress of Applied Mechanics. Valparaiso, Chile, January 1991.
- Invited Lecturer "*Some Problems and Solutions of the Compressible Flow Euler Equations*" Aerospace Engineering Dep. of the Penn State University, University Park, USA., June 1991.
- Invited Lecturer "*Algunos Problemas y Soluciones en la Resolución Numérica de las Ecuaciones de Euler de Fluidos Compresibles*" Escuela Latinoamericana de Matemática, Tanti, Córdoba, Argentina, August 1991.
- Paper: "*Transient Analysis of Tube Rolling Processes by a Semi Analytical Formulation*". Third International Conference of Computational Plasticity, Barcelona, Spain, April 1992.
- Invited Lecturer "*Algunas Consideraciones sobre Como Mejorar la Convergencia al Estado Estacionario de las Ecuaciones de Fluidos Compresibles*", Centro Internacional de Métodos Numéricos en Ingeniería, Barcelona, Spain, May 1992.
- **Plenary Lecturer**: "*Numerical Formulations for Compressible and Nearly Incompressible Flows: Recent Developments*", International Congress on Numerical Methods in Engineering and Applied Sciences, Concepción, Chile, November 1992.

- Invited Lecturer: "*Análisis de Problemas Metalúrgicos mediante Formulaciones Fluidodinámicas*", Laboratorio Nacional de Computación Cientia Fica (LNCC), Río de Janeiro ,Brazil, March 1993.
- Invited Lecturer: "*Solución de las Ecuaciones de Fluidos Compresibles e Incompresibles mediante Aproximaciones de igual orden*". Laboratorio Nacional de Computación Científica (LNCC), Río de Janeiro, Brazil, March 1993.
- Invited Lecturer: "*Solución de las Ecuaciones de Fluido Compresible e Incompresible mediante Formulaciones de Igual Orden*", Computational Mechanics Seminar, Universidad de Buenos Aires, Argentina, April 1993.
- Invited Lecturer: "*Une Approximation unique pour la Modélisation des Fluides Compressibles et Incompressibles*", Université de Nice, Nice, France, June 1993.
- Invited Lecturer: "*Solución Numérica de las Ecuaciones de Fluidos Compresibles e Incompresibles Mediante Interpolaciones de Igual Orden e Integración Explícita*", II I Congress on Numerical Methods in Engineering, La Coruña, Spain, June 1993.
- **PlenaryLecturer**: "*Solución Numérica de las Ecuaciones de Fluidos Compresibles e Incompresibles Mediante Interpolaciones de Igual Orden e Integración Explícita*", II Congress on Numerical Methods in Engineering, La Coruña, Spain, June 1993.
- Invited Lecturer: "*Formulations Uniques pour des Fluides Compressibles et Incompressibles* ", Seminar given at the Université de Technologie de Compiègne, France, April 1994.
- Invited Lecturer: "*Numerical Solution of Compressible and Incompressible Flows with Equal Interpolations and Explicit Integration*", The Third World Congress on Computational Mechanics, WCCM III, Tokyo, Japan, August 1994.
- Invited Lecturer: "*Análisis Numérico de Fluidos Comprensibles a Velocidades Transónicas: Problemas Bi y Tridimensionales*". France 2000 Exhibition, INRIA Stand, Buenos Aires, December 1994.
- Invited Lecturer: "*Resolución de Problemas de Mecánica de Fluidos por Métodos Numéricos*", Seminar given at the Universidad Politécnica de la Coruña, Spain, April 1995.
- Invited Lecturer: "*Solutions des Equations Stationaires de Navier-Stokes via une Integration Explicite*" Seminar given at L'Ecole Politechnique of Lyon, France, May 1995
- Paper: "*Generalized Finite Point Method (FPM) on Computational Fluid Mechanics*" U.S. National Congress on Computational Mechanics, Dallas, USA, June 1995
- Invited Lecturer: "*Solución Numérica de Algunos Problemas de Mecánica de Fluidos; Inconvenientes y Soluciones*". Seminar given at the Universidad de Cuyo, Mendoza, Argentina, August, 1995.
- Invited Lecturer: "*Aproximaciones Numéricas que Sólo Necesitan Puntos*". Seminar given at the Universidad de Mar del Plata, August 1995.
- **Plenary Lecturer**: "*A Finite Point Method for the Solution of Fluids Mechanics Problems", at the Work Shop* "Computational Methods for Oceanic and Atmospheric Flows", Rio de Janeiro, Brazil, September 1995
- **Plenary Lecturer**: "*A General Algorithm for Compressible and Incompressible Flow. Stability Analysis and Explicit Time Integration*". International Conference in Finite Elements on Fluids". Venice, Italy, October 1995.
- Invited Lecturer: "*El Método de los Puntos Finitos, Elementos Finitos o Diferencias Finitas ?*. Seminar given at the Universidad Nacional de Buenos Aires, November 1995.
- **Plenary Lecturer**: "*Preconditioning to solve the Incompressible Flow Ecuations using Explicit Methods*". XVI Iberian-Latin American Conference on Computational Methods for Engineering, Curitiba, Brazil, November 1995.

- **Plenary Lecturer**: "*The Finite Point Method (FPM) on Computational Mechanics*", Fourth Franco Latin American Congress on Applied Mathematics, Concepción, Chile, December 1995.
- Invited Lecturer: "*Gridless Methods : A new Possibility to Solve Computational Mechanics Problems*". Seminar given at the Institut für Baustatik,Graz, Autria, May 1996.
- Invited Lecturer: "*Consideraciones sobre la Solución Numérica de algunos Problemas de Mecánica de Fluidos*". Seminar given at the Escuela de Matemática Aplicada a la Industria, Mar del Plata, Argentina, August 1996.
- **Plenary Lecturer**: "*Meshless Methods in Computational Fluid Mechanics*", University Padua, Italy, XVII CILAMCE, September 1996.
- Paper: "*An Efficient GMRES Preconditioner for Compressible and Incompressible Navier Stokes Equations*", III Congreso de Métodos Numéricos en Ingeniería, Zaragoza, Spain, June 1996
- Paper: "*The Finite Point Method in Fluid Mechanics: Ship Wave Problems*" Fourth U.S. National Congress in Computational Mechanics. San Francisco, USA, August 1997
- Paper: "Numerical Simulation of Macrosegregation of Fe-Alloys in continuous Casting Process" XVIII Congreso Ibero-Latinomericano de Métodos Computacionales en Ingeniería, Brasilia 29-31 October 1997.
- Mini-symposium Organizer: " Free Surface Ship Wave Problems". Fourth ECCOMAS Computational Fluid Dynamics Conference, Athens, Greece, 7-11 September 1998.
- Paper: "Stabilization of the Numerical Solution for the Free Surface Wave Equations in Fluid Dynamics". Fourth ECCOMAS Computational Fluid Dynamics Conference, Athens, Greece, 7-11 September 1998.
- Invited Lecturer: Mecánica Computacional: Traslado de la experiencia ingenieril en temas industriales al campo de la Bioingeniería". Primeras Jornadas de Bioingenería, Buenos Aires, Argentina, October 1998.
- Invited Lecturer: "Estabilización en la solución numérica de algunas ecuaciones de mecánica de fluidos".Institute for Technological Development in Chemical Industry(INTEC) Seminars. Santa Fe, November 1998
- Paper: "Avances en la solución de problemas de dinámica de fluidos por el método de puntos finitos". IV Congress on Numerical Methods in Engineering, Seville, Spain, 10 June 1999.
- Paper: "Stabilization of the Advective-Diffusive Equations: Upwind. Vs Absorving boundary conditions. Applications to free surface problems in naval hydrodinamics ". 5th U.S. National Congress on Computational Mechanics, Boulder, USA 4-6 August 1999.
- Paper: "A stabilized finite element method for incompressible flows using a increment calculus formulation. 5th U.S. National Congress on Computational Mechanics, Boulder, USA 4-6 August 1999.
- Paper: "Methods for free surface flow simulation". 5th U.S. National Congress on Computational Mechanics, Boulder, USA 4-6 August 1999.
- Paper: "Advances in the stabilized finite point method in fluid dynamics". 5th U.S. National Congress on Computational Mechanics, Boulder, USA 4-6 August 1999.
- Paper: "On the Solution of the Incompressible Navier-Stokes Equations using a PC's Cluster". Finite Element in Flow Problems 2000 (FEF 2000), Austin, Texas, USA. 30 April - 4 May 2000.
- Invited Lecturer: "Lagrangian Formulations for Incompressible Flows with Free-Surface and Breaking Waves". Seminarios de Mecánica Computacional, Departamento de Matemática Aplicada de la Escuela de Caminos, Canales y Puertos de la Universidad Politécnica de Cataluña, Barcelona, Spain, June 2000.

- Session Organizer: "Lagrangian Formulations in Computational Fluid Dynamics". European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS, 2000), Barcelona, Spain, 11-14 September 2000.
- Paper: "Meshless Approximations and Lagrangian Formulations to Solve Free Surface Flow". European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS, 2000), Barcelona, Spain, 11-14 September 2000.
- Invited Lecturer: "The Finite Point Method: an Acceptable Alternative to Solve Fluid Mechanics Problems". European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS, 2000), Barcelona, Spain, 11-14 September 2000.
- Paper: "A Meshless Finite Element Method". First M.I.T Conference on Computational Fluid and Solid Mechanics, Massachussets, EEUU 12 - 14 de June 2001.
- Session Organizer: "Meshless Methods". First M.I.T Conference on Computational Fluid and Solid Mechanics, Massachussets, EEUU 12 - 14 de June 2001.
- Paper: "Galerkin versus point collocation methods in mesh-free formulations". VI United State National Congress on Computational Mechanics, Dearborn, Michigan, EE.UU 1-4 de August 2001.
- **Plenary Lecturer**: "Métodos sin Malla: una Moda o una Necesidad? Quinto Congreso de Métodos Numéricos en Ingeniería. Madrid, Spain, 3-6 June, 2002.
- Invited Lecturer: "Lagrangian Formulations: The Only Way to Solve Some Free Surface Fluid Mechanics Problems". Fifth World Congress on Computational Mechanics. Vienna, Austria, 7-12 July, 2002.
- Invited Lecturer: "Meshless Finite Element Ideas". Fifth World Congress on Computational Mechanics. Vienna, Austria, 7-12 July, 2002.
- Invited Lecturer: "FE Particles Methods for Fluid-Structure Interaction Problems". FENET Technology Workshop. Barcelona, Spain, 27-28 February 2003.
- Invited Lecturer: "Métodos de Elementos Finitos Avanzados en Dinámica de Fluidos. Aplicación a Problemas de Interacción Fluido-Estructura". Universidad de Valladolid, Spain. April 2003.
- Invited Lecturer**: "***A Lagrangian Meshless Finite Element Method Applied to Fluid-Structure Interaction Problems***". Second MIT Conference on Computational Fluid and Solid Mechanics, Massachussets Institute of Technology, Cambridge, USA, June 17-20, 2003.
- Session Organizer: ***"Meshless Methods"*** **,** Second MIT Conference on Computational Fluid and Solid Mechanics, Massachussets Institute of Technology, Cambridge, USA, June 17-20, 2003.
- Invited Lecturer: **"***The meshless finite element method used as a particle method to solve incompressible fluid mechanic problems***" , VII United States National Congress on Computational Mechanics, Alburquerque, New Mexico, USA 28-31 July 2003.
- Session Organizer: *"Symposium on Mesh Free Methods",* VII United States National Congress on Computational Mechanics, Alburquerque, New Mexico, USA 28-31 July 2003.
- Paper:: *"The extended Delaunay tesselation for moving grids in Lagrangian flows",* VII United State National Congress on Computational Mechanics, Albuquerque, New Mexico, USA 28-31 July 2003.
- Paper: *"FIC stabilization for particle methods in fluid mechanics problems"*, VII United States National Congress on Computational Mechanics, Albuquerque, New Mexico, USA 28-31 July 2003.
- Paper: *"Lagrangian formulation of the fluid mechanic problems including free-surface and breaking waves."*, VII United States National Congress on Computational Mechanics, Albuquerque, New Mexico, USA 28-31 July 2003.
- Invited Lecturer: *"Free Surface Fluid Simulation",* Jornada de Mecánica Computacional, Santiago, Chile, September 5, 2003.

- Invited Lecturer: *"Particle Methods and Finite Element Methods: A Powerful Tool to Solve Fluid Structure Interaction Problems"*, XVIII CEDYA/VIII CMA, Differential Equations and Applications Congress, Tarragona, Spain, 15-19 September, 2003.
- **Plenary Lecturer**: *"Métodos de Partículas: Una Solución Ingenieril al difícil Problema Matemático de Fluidos con Superficies Libres"*, Second Engineering Applied Mathematics and Teaching Mathematics in Engineering International Congress, INMAT 2003, Universidad de Buenos Aires, Argentina, 15-17 December, 2003.
- Invited Lecturer**: *"Una formulación lagrangiana para la solución numérica de problemas de mecánica de fluidos"* Seminario de Ecuaciones y Matemática Aplicada. Mathematical Department, Universidad Autónoma de Madrid. Madrid, May 14th., 2004
- Paper**: *"Free-Suerface Flor using the Particle Finite Element Method (PFEM)"*. VI Congreso de Métodos Numéricos en Ingeniería. Lisboa, Portugal .May 31-Jun 2 , 2004.
- **Plenary Lecturer: "***Mesh or Meshless Methods? Is This The Proper Question?"*, WCCM VI, Sixth World Congress on Computational Mechanics, Beijing, China, September 5-10, 2004.
- Invited Lecturer**: "***Mesh or Meshless Methods? Is This The Proper Question?"*, Seminarios de Mecánica Computacional, Buenos Aires University, October 2004.
- Invited Lecturer**: "***The Particle Finite Element Method: A New Challenge to Simulate Flows with Free Surfaces, Breaking Waves and Fluid-Structure Interactions Problems"**. ASME International Mechanical Engineering Congress. Anaheim, California, USA, November 13-19, 2004
- Invited Lecturer: *The Particle Finite Element Method: A Powerful Tool to Solve Fluid Mechanics Problems with moving Boundaries and Interfaces.* S. Idelsohn, E. Oñate F. del Pin. Finite Element for Fluid Problems FEF05 Swansea, Wales, U.K 4-6 April 2005
- **Plenary Lecturer:** *"Applications of the Particle Finite Element Method (PFEM) to Solve Coupled Problems.* Coupled Problems 2005, S. Idelsohn, E. Oñate, F. del Pin , R. Aubry y M. A. Celigueta. Computational Methods for Coupled Problems in Science. 25-27 May, Santorini Island, Greece, 2005.
- **Plenary Lecturer:** *Fluid-Structure Interaction Problems with Free-Surfaces flows and Breaking Waves. S. Idelsohn, E. Oñate, F. del Pin.* Marine 2005 Computational Methods in Marine Engineering, Oslo, Norway, 27-29 June, 2005.
- Invited Lecturer: *"A Particle Method Based on the Finite Element Shape Functions"*. Congress of Numerical Methods in Engineering, Granada, Spain, 4-7 July, 2005.
- Paper: *Moving Boundary and Interface Simulations using the Particle Finite Element Method.* S. Idelsohn, E. Oñate, F. del Pin,. R. Aubry. 8th. US National Congress on Computational Mechanics, Austin Texas 24-28 July, 2005
- **Keynote Lecturer:** Adaptive FIC/FEM Formulation for Advective Transport and Incompressible Fluid Flow Problems, S. Idesohn,, E. Oñate, F. Zarate, F. Flores .ADMOS 2005 Int. Conference in Adaptive Modelling and Simulations 8-10 September 2005, Barcelona, Spain
- Panel *"Cristalización de Ideas e Inserción en el Mundo Productivo"*.¨Noveno Encuentro de Jóvenes Investigadores, Universidad Nacional del Litoral, October 27, 2005
- Invited Lecturer: *" Free-surface flows using the particle finite element method (pfem)"* Seminars of the LMT Cachan (Ecole Normale Sueperieur, CNRS, Université de Paris 6) Mars, 2006, Cachan, Paris, France.
- Invited Lecturer: *"Lagrangian Particle Methods"*. First Course on Fluid-Structure Interactions. ECCOMAS School. Centre for Advanced Studies of Ibiza. Organized by Hermann G. Matthies and Roger Ohayon. Ibiza, Spain, 3-6 May, 2006.

- Invited Lecturer: *"Lagrangian formulations for the incompressible Navier-Stokes equations"*. Workshop on Challenges in Computational Mechanics. Cachan, Paris, France, May 10-12, 2006.
- **Keynote Lecturer**: *"Free-Surface, Incompressible, Navier-Stokes Flows Using Lagrangian Formulations"*. III European Conference on Computational Mechanics: Solid, Structures and Coupled Problems in Engineering. (ECCM-2006), 5-8 June 2006, Lisbon, Portugal.
- Invited Lecturer: *"Stabilization terms for full-lagrangian formulations in fluid mechanics problems"*. 7th World Congress on Computational Mechanics. Los Angeles, California, July 17-21, 2006.
- **Plenary Lecturer:** *"The Particle Finite Element Method: an efficient method to solve CFD problems with free-surfaces and breaking waves"*. European Conference on Computational Fluid Dynamics. ECCOMAS CFD'06. Egmond aan Zee, The Netherlands, 5-8 September, 2006.
- Invited Lecturer: *"A unified Formulation for Fluid-Structure Interaction Problems"*. Computational Methods for Coupled Problems in Sciences and Engineering II, Santa Eulalia, Ibiza, Spain, May 21-23, 2007.
- **Plenary Lecturer:** *"The Particle Finite Element Method Applied to Solve Several Marine Engineering Problems"*. II International Conference on Computational Methods in Marine Engineering, Marine 2007. Barcelona, Spain, June 5-7, 2007.
- Invited Lecturer: *" A Unified Formulation for Fluid-Structure Interaction Problems"*. CMNE-CILAMCE 2007. Congreso de Métodos Numéricos en Ingeniería. Porto, Portugal, 14-16 Jun 2007.
- **Plenary Lecturer**: "Modelling Fluids of Heterogeneous Materials Using the Particle Finite Element Method". Modelling of Heterogeneous Materials Conference, Prague, Czech Republic, 25-27 June 2007.
- Invited Lecturer: "The Particle Finite Element Method in Fluid-Structure Interaction Problems". US National Congress on Computational Mechanics. San Francisco, USA 23 - 26 July 2007.
- Session Organizer: "Particle Methods in Continuous and Discontinuous Mechanics". US National Congress on Computational Mechanics. San Francisco, USA 23 - 26 July 2007
- **Plenary Lecturer:** "New Computational Challenges in Fluid-Structure Interaction Problems" ECCOMAS Multidisciplinary Jubilee Symposium, EMJS08, Vienna, Austria, 18-20 February 2008.
- **Plenary Lecturer:** "Recent advances in Particle Methods to solve fluid-structure-interaction problems". IX Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas CIMENICS'2008. Margarita Island, Venezuela, March 31-April 4, 2008.
- **Semi Plenary Lecturer:** "Fluid-Structure Interaction Problems Including Added-Mass Effect". 8th World Congress in Computational Mechanics and 5th European Congress on Computational Methods in Applied Sciences and Engineering. Venice, Italy. June 30- July 4, 2008.
- **Keynote Lecturer**: "Algunas consideraciones sobre problemas de interacción fluido estructura". XVII Congreso sobre Métodos Numéricos y sus Aplicaciones, San Luis, Argentina, 10-13 November, 2008.
- **Plenary Lecturer:** "Modelling different immiscible Fluids using the Particle Finite Element Method". 1st African Conference on Computational Mechanics, AFRICOMP'09, Sun City, South Africa, 7-11 January 2009.
- **Plenary Lecturer:** "Lagrangian formulations to solve Fluid-Structure Interactions problems", IV International Symposium on Nonlinear Equations and Boundary Problems, PDE-FBP2009". Mar del Plata, Argentina, 17-20 March, 2009.

- **Keynote Lecturer:** "Modelling Heterogeneous Fluid Flows", 15th International Conference on Finite Elements in Flow Problems (FEF09), Tokyo, Japan, 1-3 April, 2009.
- **Keynote Lecturer: "**The Particle finite Element Method in Fluid-Structure Interaction problems". Coupled Problems 2009. Computational Methods for Coupled Problems in Science and Engineering, Ischia, Italy, 8 - 11 June, 2009.
- **Semi Plenary Lecturer:** "Melting of Thermoplastic Materials with the Particle Finite Element Method". SEECCM 2009, 2nd South-East European Conference on Computational Mechanics, Rhodes, Greece, 22-24 June 2009.
- **Invited Lecturer**: "Combustion and Melting of Thermoplastic Materials with the Particle Finite Element Method". 10th US National Congress in Computational Mechanics, Columbus (OH), USA, July 16-19, 2009.
- **Plenary Lecturer:** "The Particle Finite Element Method in Thermal Problems". First International Conference on Computational Methods for Thermal Problems, ThermaComp2009, Napoli, Italy, September 8-10, 2009.
- **Keynote Lecturer:** "Recent Advances in Particle Methods" BICTAM 2009, International Symposium on Meshfree/Meshless Particle and Generalized/Extended Finite Element Methods, Nanjing, China, October 12-16, 2009.
- **Plenary Lecturer:** "Multi-fluid flows with the Particle Finite Element Method". V Congreso Internacional de Métodos Numéricos", Guanajuato, Mexico, February 3-5, 2010.
- **Plenary Lecturer:** "Multi-fluid flows with the Particle Finite Element Method". X Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas", Mérida, Venezuela, 22-24 March, 2010.
- **Plenary Lecturer: "**Lagrangian formulations: an interesting solution for heterogeneous fluid flows". 28th Israel Symposium on Computational Mechanics (ISCM-28), the Hebrew University of Jerusalem, April 29, 2010.
- **Plenary Lecturer:** "From particle methods to Real Time Computational Mechanics". 9th World Congress on Computational Mechanics, WCCM IX, Sydney, Australia, July 2010.
- **Plenary Lecturer:** "Particle methods in multi-fluid problems" IX Congreso Argentino de Mecánica Computacional, MECOM 2010 y XXXI Congreso Ibero-Latino Americano de Métodos Computacionales en la Ingeniería CILAMCE, Buenos Aires, Argentina, November 2010.
- **Plenary Lecturer:** "Métodos de Partículas, una solución sencilla para resolver problemas de Mecánica de Fluidos en Ingeniería". Segundo Congreso Argentino de Ingeniería Aeronáutica. Cordoba, Argentina, November 2010.
- **Plenary Lecturer:** "The Particle Finite Element Method Applied to solve Multi-Fluid Flows". International Conference on Multiscale Modelling and Simulation ICMMS 2010, Guangzhou, China, December, 2010
- **Plenary Lecturer:** "Fluid-Structure Interaction problems with large added mass effects". Fluid-Structure-Interaction Workshop, Institute of High Performing Computer, Singapore, April 2011.
- **Keynote Lecturer:** "The Particle Finite Element Method in Multi-Fluid-Structure Interactions Problems" 16th International Conference on Finite Elements in Flow Problems-FEF2011. Munich Germany, March 2011.
- **Plenary Lecturer:** Large Time-Step Explicit Integration Methods for Solving Problems with Dominant Convection. Ecole Normale Superieur de Cachan, France. May 2011.
- **Plenary Lecturer:** "Multi-fluid flows simulations". IV International Conference on Computational Methods for Coupled Problem in Sciences and Engineering. Kos Island, Greece, June 2011.

- **Keynote Lecturer:** "Particle Methods using Explicit Streamline Integration". 11th U.S. National Congress on Computational Mechanics, Minneapolis, USA, July 2011.
- **Plenary Lecturer:** "Particle Methods and Real Time Computational Mechanics". International Conference on Particle-Based Methods. Fundamentals and Applications" (Particles 2011), Barcelona, Spain, October 2011.
- **Semi-Plenary Lecturer:** "Recent Advances in Real-Time Computational Fluid Dynamics". 10th World Congress on Computational Mechanics. Sao Paulo, Brazil, July 2012.
- **Plenary Lecturer: "**Possibilities of Real-Time solutions in Computational Fluid Dynamic". Décimo Congreso Argentino de Mecánica Computacional, MECOM X, Salta, Argentina, November 2012.
- **Keynote Lecturer:** "Particle methods: A possibility of drastically reducing the computing time to solve the incompressible Navier-Stokes equations", Advances in Computational Mechanics and 17th International Conference on Finite Elements in Flow Problems (FEF 2013). San Diego, USA, February 2013.
- **Invited Speaker:** "Stabilizing high frequency modes in Reduced Order Models". First CSMA-SEMNI workshop on Model Order Reduction, Jaca, Spain, March 2013.
- **Semi Plenary Lecturer:** " Particle Methods: the best solution for computational fluid dynamic problems". Third South-East European Conference on Computational Mechanics, SEECCM III, Kos Island, Greece, June 2013.
- Paper: "Particle methods for multi-fluid flow problems". Congreso de Métodos Numéricos en Ingeniería-CMN 2013, Bilbao, Spain, June 2013.
- Paper: "Particle Methods: a possibility to solve in Real Time, the incompressible Navier-Stokes equations with free and/or internal boundaries". 12th U.S. National Congress on Computational Mechanics-USNCCM. Raleigh, USA, July 2013.
- **Plenary Lecturer:** "Real-Time Computational fluid dynamics"**.** 20th International Conference on Computer Methods in Mechanics. CMM2013. Poznan, Poland, August 2013.
- **Plenary Lecturer:** "Lagrangian frames. An efficient and accurate way to solve multi-fluids flows" Workshop on Computational Methods for Problems with Evolving Domains and Discontinuities. Stanford University. Stanford, USA, December 2013.
- **Keynote Lecturer:** "Incompressible Multi-Fluids Flows Solved with Large Time-Steps", Advanced in Computational Fluid-Structure Interaction and Flow Simulation (AFSI 2014). Tokyo, Japan, March 2014.
- **Semi-Plenary Lecturer:** "Real-Time Computational Fluid Dynamics: A Challenging Demand for Safety and Environmental Problems". Computational Engineering and Science for Safety and Environmental Problems (COMPSAFE 2014). Sendai, Japan, April 2014.
- **Semi-Plenary Lecturer:** "Particle Methods: the most efficient way to solve fluid mechanics problems"; 11th. World Congress on Computational Mechanics (WCCM XI); 5th. European Conference on Computational Methods (ECCM V); 6th. European Conference on Computational Fluid Dynamics (ECFD VI); July 20-25, 2014; Barcelona, Spain.
- Paper: "Multi-fluid flows solved with large time-steps". *XXI Congreso sobre Métodos* Numéricos y sus aplicaciones. (ENIEF 2014); September 23-26, 2014.
- **Plenary Lecturer:** "Particle methods: the most efficient way to solve CFD problems". XXXV Ibero-Latin American Congress on Computational Methods in Engineering - CILAMCE, Fortaleza, Brazil November 23th to 26th, 2014.
- **Plenary Lecturer:** "Why do you use an Eulerian frame to solve your CFD problems if using a Lagrangian frame is faster and more accurate?" II CSMA-SEMNI Workshop, Biarritz, France, February 2 - 4, 2015.

- **Plenary Lecturer:** "Particle methods in coupled problems", VI International Conference on Coupled problems in Sciences and Engineering- COUPLED PROBLEM 2015", Venice, Italy, May 2015.
- **Plenary Lecturer:** "Enrichment spaces: a simple solution to solve FSI problems and moving interfaces using fixed meshes", Advances in Computational Fluid–Structure Interaction and Flow Simulation-AFSI 2015, Istanbul, Republic of Turkey, May 2015.
- Paper: "Why particle methods can be faster than classical FEM to solve convective-dominant problems? ". 13th U.S. National Congress on Computational Mechanics-USNCCM. San Diego, USA, July 2015.
- **Plenary Lecturer:** "The Particle Finite Element Method-Second Generation: an overview" Fourth Conference on Particle-Based Methods (PARTICLES 2015), 28-30 September, 2015, Barcelona, Spain.
- **Plenary Lecturer: "**Enriched spaces: a class of Reduced Order Model for problems with moving interfaces". Workshop on Reduced Basis, POD and PGD Model Reduction Techniques. École Normale Supérieure de Cachan, France - November 4-6, 2015.
- **Plenary Lecturer:** "Algunas tendencias en la Mecánica Computacional que pueden tener futuro". Workshop on Future Trends in Computational Mechanics. Santa Fe, Argentina, 16-17 November 2015.
- **Plenary Lecturer:** "Large time-steps and coarse mesh strategies suitable for problems with moving interfaces"; Conference on New Challenges in Computational Mechanics, École Normale Supérieure de Cachan, France - May 23-25, 2016.
- **Keynote Lecturer:** "Advances in the Particle Finite Element Method for Multidisciplinary Problems"; VII European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2016); June 5-10; 2016; Crete, Greece.
- **Semi-Plenary Lecturer:** "Are we using the mesh as coarse as possible and the maximum time-step necessary to efficiently solve a particular problem?"; 12th World Congress on Computational Mechanics (WCCM XII) and 6th Asia-Pacific Congress on Computational Mechanics (APCOM VI); July 24-29, 2016; Seoul, Korea.

Publications:

A) In Scientific Journals:

1. *"Nonlinear Structural Dynamics via Newton and Quasi-Newton Methods", by M. Geradin, S.R. Idelsohn and M. Hogge. **Nuclear Engineering and Design**. Published by North Holland Publishing Company.Vol. 58, pp. 339-348, (1980).*
2. *"Computational Strategies for the Solution of Large Nonlinear Problems via Quasi-Newton Methods", by M. Geradin, S. R. Idelsohn and M. Hogge; **Computer and Structures**; Vol. 13, pp. 73-81, (1980).*
3. *"A Family of Conforming Finite Elements for Deep Shell Analysis", by S.R. Idelsohn and G. Sander. **International Journal for Numerical Methods in Engineering**. John Wiley \ Sons., Vol.18, 363-380, (1982).*
4. *"On the Use of Deep, Shallow or Flat Shell Elements for the Analysis of Thin Shell Structures", by S.R. Idelsohn. **Computer Methods in Applied Mechanics and Engineering.** North Holland Publishing Company, Amsterdan, Vol. 26, Number 3, pp. 321-330.*
5. *"Pre and Post Degradation Analysis of Composite Material with Different Modules in Tension and Compression", by S.R. Idelsohn, C. Nyssen and G. Laschet. **Computer***

Methods in Applied Mechanics and Engineering. North Holland Publishing Company, Amsterdan. Vol.30, pp. 133-149, (1982).

6. "On the Self-Stressing Modes in Free Vibration Analysis", by S.R. Idelsohn and M. Geradin. **Journal of Sound and Vibration**, Academic Press. pp. 143-155, (1982), Vol. 83 (2).

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