EUGENIO OÑATE IBÁÑEZ DE NAVARRA

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SUMMARY

Eugenio Oñate is a Civil Engineer born in 1953 in Valencia, Spain. His activity in the last 43 years has combined in a balanced manner an ***academic career*** as **Professor of Structural Mechanics** at the Universitat Politècnica de Catalunya (UPC), a ***research career*** in the field of **numerical methods and computational mechanics** and a ***professional career*** focused on the **application of numerical methods in engineering** and the **transfer of the outcomes** of his research to the industrial sector. His research achievements in the form of innovative numerical methods and software for analysis of structures, fluid dynamics and coupled fluid-structure interaction problems and industrial manufacturing processes are internationally recognized.

RELEVANT ACTIVITIES AND ACHIEVEMENTS

After completing a degree in **Civil Engineering in July 1975 at the Universidad Politécnica de Valencia (Spain)**, E. Oñate started postgraduate studies at the Civil Engineering Department of Swansea University, Wales, UK. There he completed in **June 1976 a Master of Science degree on numerical methods for bridge engineering analysis, and a Ph.D. degree (Dec. 1978)** on numerical methods for analysis of industrial metal forming processes under the supervision of the prestigious Prof. O. C. Zienkiewicz (FRS). His PhD studies were funded by an Alcoa Research Grant from USA.

On February **1979 he moved to Universitat Politècnica de Catalunya** (UPC) in Barcelona, Spain, where he was hired as an Associated Professor on Structural Mechanics at the School of Civil Engineering. He became a Full Professor with tenure on June 1983. From 1983-1989 he was the **Director of the School of Civil Engineering at UPC**. During that period and under his personal supervision the new premises of the Civil Engineering School (≈20.000 m2) were designed and built in the new Campus Nord of UPC.

In 1985 he was the founder of the Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería (RIMNI). This UPC Journal is devoted to the dissemination of the research in the field of Computational Engineering among the Ibero-American community. RIMNI has been published quaterly in Spanish and Portuguese for the last 42 years until nowadays under the co-editorship of E. Oñate. In the period 1985-2010 RIMNI was published by CIMNE. In the period 2010-2017 RIMNI was published by Elsevier. Since 2017 RIMNI is published in Spanish, Portuguese and English in Open Access format by Scipedia (https://www.scipedia.com/sj/rimni). The Impact Factor of RIMNI (2020) is IF= **0.513**.

On March 1987 he founded CIMNE (International Center for Numerical Methods in Engineering, www.cimne.com), a research center specialized on the development and application of numerical methods in engineering. **Since 1987 he is the Executive Vice-President and Director General of CIMNE**. This center has grown to employ today some 250 scientists and engineers from 25 different countries worldwide specialized on research in different fields of engineering (civil, mechanical, aerospace and naval engineering, bio-medical engineering, food engineering, etc.). CIMNE has premises in different cities of Spain, other legal offices in Argentina and

Washington DC (USA) and extensive cooperation links with universities and research organizations in many countries in Europe, the middle east and Asian-Pacific region. CIMNE has received many prestigious Awards in Spain and by the European Commission http://www.cimne.com/vpage/2/0/About/Awards.

In 2002 he created the Aulas CIMNE. The Aulas CIMNE are physical spaces (Joint-Labs) created by agreement between CIMNE and a university for the development of education, research and technology transfer activities (http://aulas.cimne.com). The Aulas CIMNE Network incorporates nowadays 30 members in Spain and several Latin American countries (Argentina, Mexico, Chile, Peru, Colombia, Brazil, Cuba, Guatemala, El Salvador and Venezuela). The CIMNE Classrooms are an innovative instrument for scientific and technical cooperation between academic and industrial organizations in Europe and Latin-American. The Aulas CIMNE Network is managed by the **Asociación Internacional de Aulas CIMNE**, an independent legal association created by his initiative in 2004. https://www.cimne.com/2994/3471/alliances/aiac.

I**n 1989 he was the founder and first President of the Spanish Association for Numerical Methods in Engineering** (SEMNI, www.cimne.upc.es/semni). During his term as president (1989-2004) SEMNI became the largest association in Europe in the field of Numerical Methods in Engineering. SEMNI has organized 17 congresses in the field. On **June 2004 he was appointed Honorary President of SEMNI**.

In 1993 he founded, together with Prof. Michael Kleiber from the Polish Academy of Sciences, the journal **Archives for Computational Methods in Engineering (ARCO)**. ARCO is published by Springer. Its Impact Factor (IF, 2020) is **7,302**.
www.springer.com/engineering/computational+intelligence+and+complexity/journal/11831

The ranking of ARCO (by September 15th, 2021) within the scientific categories in its field is the following (Source Scopus):

Category Name	Total Journals in Category	ARCO Rank in Category	Quartile
MATHEMATICS, INTERDISCIPLINARY APPLICATIONS	105	1	Q1
ENGINEERING, MULTIDISCIPLINARY	88	2	Q1
COMPUTER SCIENCE, INTERDISCIPLINARY APPLICATIONS	106	5	Q1

In July 2005 he was appointed Honorary Member of the Portuguese Association of Theoretical, Applied and Computational Mechanics (APMTAC) in recognition of his work towards the cooperation of APMTAC and SEMNI. Under his initiative the APMTAC and SEMNI conferences were merged. The joint conference, held bi-annually in Spain and Portugal, alternatively, since 1983, typically attracts some 400 scientists and engineers.

He was one of the founders and first Vice-President (1993-1995) of the European Community on Computational Methods in Applied Sciences (ECCOMAS, www.eccomas.org).

In the period 2000 - 2004 he was President of ECCOMAS. On September 2000 he organized and chaired the third ECCOMAS Congress in Barcelona which attracted some 1500 participants.

In the period **1994-2002** he was **Secretary General of the International Association for Computational Mechanics** (IACM, www.iacm.info).

From **2002-2010** he was **President of the IACM.** On July 2006 he was re-elected as President of the IACM for a four year period (he has been the only president of the IACM who has been re-elected). During his term as Secretary General and President of IACM he supervised the organization of the World Congresses of Computational Mechanics (WCCM) of the IACM held in Tokyo (1994), Buenos Aires (1998), Vienna (2002), Peking (2004), Los Angeles (2006), Venice (2008) and Sidney (2010) and Barcelona (2014). Some 4000 participants attended the WCCM 2014 event held in Barcelona (Spain) on 20-25 July 2014 and co-chaired by E. Oñate, (http://www.wccm-eccm-ecfd2014.org).

In the period **2002-2004 he was simultaneously president of IACM and ECCOMAS (as well as of SEMNI).** This landmark has never been achieved by any other president of the two international organizations.

In 2010 he was appointed Permanent Member (with full voting rights) **of the Executive Council of the IACM.**

In 2014 he founded the International Journal on Computational Particle Mechanics together with Profs T. Zohdi (University of California at Berkeley) and P. Wriggers (Leibniz University Hannover). The journal is published by Springer. Its Impact Factor (2020) is **2,105**.
http://www.springer.com/engineering/mechanics/journal/40571

In the period **2020-2023** he is **Scientific Director of the Severo Ochoa Programme of CIMNE.** The Severo Ochoa award is the highest distinction to a research organization in Spain. It was awarded to CIMNE in December 2019 for a period of four years. During this period CIMNE plans to hire some 50 PhDs and 20 Postdoc researchers. The Severo Ochoa Grant amounts to one million euro per year plus additional funding in the form of PhD grants.

SUPERVISION OF RESEARCHERS

He has supervised **68 Doctoral Thesis** (completed) at UPC. https://www.cimne.com/eo/16/phd-students/completed-theses. Currently he supervises **9 PhDs**.
He has supervised **65 Master Thesis** at UPC.

MAJOR CONTRIBUTIONS TO THE EARLY CAREER OF RESEARCHERS

He has supervised the career towards tenure of **49 PostDocs**; 8 of these are permanent researchers at CIMNE, 25 hold academic positions in Europe, US and Latin-America and 15 work in industry.
He has had a significant impact in the creation of new scientific groups worldwide in cooperation with his former students, mainly via the Aulas CIMNE Network https://aulas.cimne.com/.

SUMMMARY OF RESEARCH ACTIVITY

His research and professional activities have spread over a range of multidisciplinary fields which he has contributed relevant theories and computational methods of practical relevance. His research achievements in the field of **numerical methods for the analysis and design of structures, fluid dynamics and industrial manufacturing processes** are internationally recognized. His scientific contributions and software derived from his research activity are of particular relevance to the solution of multidisciplinary problems in the field of civil, industrial, aerospace, marine and naval engineering, among others.

His key scientific contributions are the following:

- **Particle-based computational techniques,** such as new discrete element method (DEM) (http://www.cimnemultimediachannel.com/vpage/2/0/technology/technology/Discrete-Element-Method) and the new particle finite element method (www.cimne.com/pfem, http://www.cimnemultimediachannel.com/vpage/2/0/technology/technology/Particle-Finite-Element) for analysis of a variety of problems in civil, mining, food processing and pharmaceutical engineering, among others. He has published 25 papers in this field. The practical outcomes of this research are collected in the DEMPACK code developed at CIMNE (www.cimne.com/dempack). DEMPACK is used by different companies for practical applications in the above mentioned fields.

- **Numerical methods combining particle-based methods and finite element methods for solving coupled problems in engineering**. The methods developed by E. Oñate are relevant for solving fluid-structure interaction problems with application to harbor and marine engineering and to constructions under flooding and tsunami situations; excavation problems in civil and mining engineering. He has published 59 papers in this field**.** The outcomes of this technology are marketed in Spain by COMPASS Ingeniería y Sistemas S.A**.** (**www.compassis.com**). His research work in this area was awarded in 2010 with an Advanced Grant of the European Research Council (ERC) for the project " ***New Computational Methods for Predicting the Safety of Constructions to Water Hazards accounting for Fluid-Soil-Structure Interactions***" (**www.cimne.com/safecon**). The Advanced Grant has a budget of 2.5 million Euros to perform research during the period 2010-2015. The Advanced Grant is one of the most important prizes of the European Commission to individual researchers in Europe.

He has received **two consecutive Proofs of Concept Award** projects of the ERC (2015 and 2017) for exploring the application and transfer to market of the outcomes of the SAFECON project in the fields of the safety of constructions to flooding events and the study of the motion of ships in iced sea waters.

- **Computational techniques for design and analysis of inflatable structures** formed by low pressure tubes of new polymer materials. Application to mobile pavilions for exhibitions, hospitals and emergency shelters; airplane hangars and portable bridges for emergencies affecting road traffic. He has published 15 papers in this field. This inflatable structure technology is exploited worldwide by the CIMNE spin-off companies Buildair Ingeniería y Arquitectura S.A. (www.buildair.com). Portable Multimedia Solutions SL (www.portablemultimediasolutions.com) and Pneumatic Structures Technology SL (2015) (www.ps-technologies.com).

- **Finite element methods for analysis of solids and structures with standard and composite materials**. Applications to the analysis and design of shells, buildings, dams, bridges, tunnels, harbor structures, inflatable structures, geomechanical problems, vehicle structures (cars, airplanes, trains, ships). He has published 132 papers in this field. This research is partially collected in several chapters of the text books "Oñate E., Structural analysis with the finite element method. Linear statics. Volume 1. Basis and Solids, 472 pp. Springer, 2009 and Volune 2. Beams, Plates and Shells, 650 pp. Springer 2013. The main practical outcome of this research is the structural analysis code RamSeries marketed by the company COMPASS Ingeniería y Sistemas S.A (www.compassis.com).

- **Numerical methods for analysis and design of manufacturing processes**. Applications to sheet metal forming and casting processes, additive manufacturing (3D printing), welding, forging, machining, blanking, and extrusion of metallic products. He has published 39 papers in this field.

The practical outcomes of this research are the software codes STAMPACK (sheet metal forming) and Click2Cast (casting) marketed by QUANTECH ATZ S.A. (www.quantech.es). Clickcast was sold to the US software company Altair in 2015.
- **Numerical methods for fluid dynamics and fluid-structure interaction problems**. Applications to the study of the safety of constructions in water hazards, aerodynamic and aeroelastic analysis of airplanes and flexible structures (tall buildings, slender bridges, aero generator blades, etc.); hydrodynamics and hydro-elastic analysis of ships and sailing boats; fluid-structure interaction problems with application to naval and offshore engineering and coupled thermal-flows in environmental problems. Much of this research has been developed under sponsorship from the Office for Naval Research (ONR) and the Naval Research Laboratory (NRL) of the USA. He has published 35 papers in this field. The main practical outcomes of this research is the code Tdyn marketed by the company COMPASS Ingeniería y Sistemas S.A (www.compassis.com).

- **Data-based decision support systems** integrating data-bases, numerical methods, wireless sensor and devices, and artificial intelligence techniques. Applications to the risk prediction and management of floods (Ramflood code, www.cimne.com/ramflood) and sea spills (Spillrec code) and bio-medical engineering and to the management of energy consumption in cities (Energy Information System, SIE). He has published 15 papers in this field. The practical outcomes of this research are marketed by the Spanish companies COMPASS Ingeniería y Sistemas S.A., QUANTECH ATZ S.A. and CIMNE Tecnología SA. (www.cimnetecnologia.com).

The above research activities have been developed in **45** FP4-FP7 and **7** H2020 EC projects and **42** RTD projects funded by public funding agencies in Spain. E. Oñate has been PI or co-PI in these projects
E. Oñate has been PI or co-PI in some **300** RTD projects funded by companies and private organizations.

The public and private funding received by the group of E. Oñate in RTD projects has amounted to some **15 and 4 million euro,** respectively.

PUBLICATIONS

He is author of 467 papers (401 papers in Q1 and 190 papers in D1) (source: Scopus)
h index: 57 (78). Number of citations: 14120 (27100)
h-index and citations source: First number: Scopus, in brackets: Google Scholar

RECENT PAPERS AND CITATIONS PER YEAR (source: Scopus)

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
13 pap	16	17	16	18	18	12	17	14	12	12	15
531 cit	586	569	698	857	835	917	1091	988	1060	1360	1197

*Information at September 15th 2021

TWO HIGHEST CITED ARTICLES

J. Lubliner, J. Oliver, S. Oller, **E. Oñate** (1989), A plastic-damage model for concrete, *International Journal of Solids and Structures* 25 (3), 299-326, Nº citations: 1820 (3566). (Source: First Nº: Scopus, In brackets: Google Scholar). https://doi.org/10.1016/0020-7683(89)90050-4

E. Oñate, S. Idelsohn, O.C. Zienkiewicz, RL Taylor, (1996), A finite point method in computational mechanics. Applications to convective transport and fluid flow, *Int. journal for numerical methods in engineering* 39 (22), 3839-3866, Nº citations: 590 (1072). doi.org/10.1002/(SICI)1097-0207(19961130)39:22<3839::AID-NME27>3.0.CO;2-R

TOP 10 PUBLICATIONS IN THE LAST TEN YEARS (information at 15.9.2021)

Publications ordered by number (Nº) of citations (Source: First Nº: Scopus, In brackets: Google Scholar.).

1) Dadvand, P., Rossi, R. and **Oñate, E**. (2010) An object-oriented environment for developing finite element codes for multi-disciplinary applications. *Archives of Comput. Methods in Engng*, 17 (3), 253-297. Nº citations: 161 (310). https://doi.org/10.1007/s11831-010-9045-2

2) Rojek, J., **Oñate, E.,** Labra, C. and Kargl, H. (2011) Discrete element simulation of rock cutting. *Int. Journal of Rock Mechanics and Mining Sciences*, 48 (6), 996-1010. Nº citations: 133 (211). https://doi.org/10.1016/j.ijrmms.2011.06.003

3) **Oñate E.,** Celigueta M.A., Idelsohn, SR, Salazar F. and Suarez B. (2011) Possibilities of particle finite element method for fluid–soil–structure interaction problems. *Comput. Mech.,*48, 3,307-18. Nº citations:110 (186), https://doi.org/10.1007/s00466-011-0617-2

4) Salazar, F., Moran, R., Toledo, M.A. and **Oñate, E.** (2017), Data-based models for the prediction of dam behavior. A review and some methodological considerations. *Archives of Comput. Methods. Engng.,* 24 (1), Nº citations: 93 (141). https://doi.org/10.1007/s11831-015-9157-9

5) Ryzhakov, P.B., Rossi, R., Idelsohn, S.R., **Oñate, E,** (2010), A monolithic Lagrangian approach for fluid-structure interaction problems. *Computational Mechanics*, 46 (6), 883-899. Nº citations: 90 (169). https://doi.org/10.1007/s00466-010-0522-0

6) Salazar, F., Toledo, M.A., **Oñate, E.** and Moran, R., (2015), Am empirical comparison of machine learning techniques for dam behavior modelling. *Structural Safety,* 56, 9-17, Nº citations: 81 (105). https://doi.org/10.1016/j.strusafe.2015.05.001

7) Carbonell, J.M., **Oñate, E.** and Suárez, B. (2010), Modeling of ground excavation with the particle finite-element method. *J. of Engng. Mechanics,* 136, 4, Nº citations: 76 (116). https://doi.org/10.1061/(ASCE)EM.1943-7889.0000086

8) Rojek, J. Labra, C. Su, O. and **Oñate, E.** (2012), Comparative study of different discrete element models & evaluation of equivalent micromechanical parameters. *Int. J. Solids and Structures,* 49 (13), 1497-1517. Nº citations: 71 (98). https://doi.org/10.1016/j.ijsolstr.2012.02.032

9) **E Oñate,** A Franci, JM Carbonell (2014), Lagrangian formulation for finite element analysis of quasi-incompressible fluids with reduced mass losses. *Int. Journal for Numerical Methods in Fluids,* 74 (10), 699-731, Nº citations: 58 (70). https://doi.org/10.1007/s00466-014-1016-2

10) **E Oñate,** F Zarate, J Miquel, M Santausana, MA Celigueta, F Arrufat, R Gandikota, K Valiullin, (2015) L Ring, A local constitutive model for the discrete element method. Applications to geomaterials and concrete. *Comp. Part. Mech.*, 2, 139-160, Nº citations: 46 (80). https://doi.org/10.1007/s40571-015-0044-9

Chief Editor of three journals:

- **Archives for Computational Methods in Engineering** (since 1993). Editors: M. Kleiber and E. Oñate. Springer. Impact Factor IF, (2020): **7,302**. ***Number one journal in its field.***
- **Computational Particle Mechanics** (since 2014). Editors: T. Zohdi, E. Oñate & P. Wriggers. Springer. IF (2020): **2,105**

- **Revista Internacional de Métodos Numéricos para Cálculo y Diseño en Ingeniería** (in Spanish, Portuguese and English). Edited by E. Oñate and S.R. Idelsohn since 1985. Open Access JCR journal (Scipedia). IF (2020): **0,513**

Member of the Editorial Board of 30 international journals (28 listed in JCR).

TEXT AND EDITED BOOKS, MONOGRAPHS, CHAPTERS IN COLLECTIVE VOLUMES, CONFERENCE PROCEEDINGS AND RESEARCH REPORTS

Text books

Author of 2 text books

Oñate, E., Structural Analysis by the Finite Element Method., Vol.1: Basis & Solids, 450 pp., Springer, 2009.
Oñate, E., Structural Analysis by the Finite Elem. Meth., Vol.2: Beams, Plates & Shells, 920 pp,Springer,2013
Both books have been translated into spanich and published by CIMNE.

Edited books

He has edited **57 books** on various topics of Computational Engineering Mechanics.
The list can be seen in http://www.cimne.com/eo/vpage/1/0/List-of-Publications

Book Series Editor

He is the editor of 3 Book Series:

- *Lecture Notes on Numerical Methods in Engineering and Sciences,* Published by Springer Verlag, Heidelberg, Germany.
- *Theory and Engineering Applications of Computational Methods,* Published by CIMNE, Barcelona, Spain.
- *Computational Methods in Applied Sciences,* Published by Springer Verlag, Heidelberg, Germany.

Monographs

He has published **58 monographs with ISBN**.
The list can be seen in http://www.cimne.com/eo/vpage/1/0/List-of-Publications

Chapters in collective volumes

He has published 68 book chapters.
The list can be seen in http://www.cimne.com/eo/vpage/1/0/List-of-Publications

Conference proceedings and research reports.

He has published **444 papers in conference proceedings and 240 research reports**.
For details visit http://www.cimne.com/eo/vpage/1/0/List-of-Publications

PATENTS

He is an inventor of the following four patents:

- Robot tensegrítico, Inventor: **E. Oñate** (Awarded on Nov. 2011).

- System and method for desalinizating sea water. Inventors: P. Arnau, **E. Oñate** and A. Hanganu. No. of European Patent 11382198.7-1213 (Awarded on 30.12.2015).
- Devise, apparatus and method for desalinizating sea water. Inventors: P. Arnau, A. Hanganu, N. Navarro and **E. Oñate**. No. of European Patent 13382196.7-1351 (Published on August 2013).
- Enhanced devise, apparatus and method for desalinizating sea water. Inventors: P. Arnau, A. Hanganu, N. Navarro and **E. Oñate**. No. of Intern. Patent WO2014/191398A1 (Published on December 2014).

INVITED PRESENTATIONS TO INTERNATIONAL CONFERENCES

He has been invited to deliver **46 Plenary Lectures (PLs), 42 Semi-Plenary Lectures (SPL)** and **51 Keynote Lectures** in relevant internat. conferences in the field of Computational Engineering. We list **3** relevant PLs.

Oñate, E., *Finite Increment Calculus. A paradigm for developing enhanced computational methods in mechanics*. PL at 12th World Congress on Computational Mechanics, Seoul, Korea, July 24-29, 2016.

Oñate, E., *The Particle Finite Element Method for Multidisciplinary Problems in Engineering,* PL at 10th World Congress on Computational Mechanics, Sao Paolo, Brasil, July 8-13, 2011.

Oñate, E., *Advanced computational method for simulation of coupled problems in engineering.* PL at 3rd Polish Conference on Computational Mechanics, Zielona Góra, Poland, 18-20 May 2009.

ORGANIZATION OF INTERNATIONAL CONFERENCES

He has been Chair or co-chair and main organiser of **63 international conferences**. The list can be seen in www.cimne.com/eo. We list a selection of 5 recent international conferences:

- XI World Congress on Computational Mechanics (WCCM XI), Barcelona, Spain, 20-25 July 2014. 4000 participants, http://congress.cimne.com/iacm-eccomas2014/frontal/Chair.asp
- Series of International Conferences on Coupled Problems in Science and Engineering (COUPLED) held at two years intervals in a Mediterranean island since 2005. https://congress.cimne.com/Coupled2021/frontal/default.asp
- Series of International Conferences on Computational Plasticity (COMPLAS), held biannually in Barcelona since 1987. https://complas2021.cimne.com/
- Series of International Conferences on Textile Composites and Inflatable Structures (STRUCTURAL MEMBRANES), held biannually in Barcelona and a city in Germany since 2003, https://membranes2021.cimne.com/
- Series of International Conferences on Particle-Based Methods (PARTICLES), held biannually in Barcelona and a city in Germany since 2009 https://congress.cimne.com/Particles2021/frontal/default.asp

TECHNOLOGY TRANSFER ACTIVITIES

E. Oñate has developed an intensive task in the **transfer of research outcomes to the industrial sector** and in particular to Spanish companies, with the aim of improving the analysis, design and manufacturing of processes and products. He has been involved in the creation of **17 spin-off companies in Spain**: 4 companies in the period 1996-2003 and 13 companies in the period 2011-2020 (www.cimne.com/vpage/2/0/Technology/Spin-off-Companies). Among the former we note:

QUANTECH ATZ, SA (1996). Software for metal forming sector, www.quantech.es;

Structuralia S.A. (2001). E-learning activities in the engineering sector. Sold in 2011 to KAPLAN, The Washington Post Group, www.structuralia.com;

COMPASS S.A. (2002). Software for civil and naval engineering, www.compassis.com and

Buildair Ingeniaría y Arquitectura SA (2003). World leader in the design and construction of large inflatable structures, www.buildair.com

In 2011 he was the main driving force in the start-up of the company CIMNE Tecnología. SA (www.cimnetecnologia.com) specialized in the transfer to industry of the technology developed at CIMNE. In the period 2011-2017 this company created or taken part as shareholder in 13 spin-off companies. Among these, we highlight the following eight ones:

Inergy S.L. (2012). Energy efficiency services in municipalities and building communities, www.inergybcn.com

Portable Multimedia Solutions S.L. (2013), Portable pavilions and devices incorporating multimedia technology, www.portablemultimediasolutions.com)

Pneumatic Structures Technology S.L. (2015). Light-weight bridges and structures for emergencies based on the tensairity technology, www.ps-technologies.com

Inloc Robotis S.L. (2015). Robotics for water supply industries, www.inlocrobotics.com

Fresh Water Nature S.L. (2014). Innovative solutions for desalinization and purification of sea and waste water, http://www.freshwaternature.com/

Beedata Analytics S.L. (2017). ICT services based on mass analytical data treatment to users and business intelligence for companies and institutions, www.beegroup-cimne.com/beedata

Scipedia S.L. (2017). Scientific and technical publisher and professional social network to connect researchers and professionals in science and technology. www.scipedia.com

OKTICS ATZ S.L. (2019). Smart digital signal technology and services, www.okobussiness.com.

The spin-off companies started by E.Oñate employ today 175 workers, including 19 Post-Docs.

SCIENTIFIC DISTINCTIONS

AWARDS

Note: Awards marked with an asterisk are the highest awards delivered by the organization.

International awards

1996 Eric Reissner Medal of the Int. Conf. on Computational & Experimental Engng & Sciences (ICCES)
1998 Fellow of International Association for Computational Mechanics (IACM).
1998 Computational Mechanics Award of IACM
2000* Award of Argentinian Association for Computational Mechanics (AMCA)
2004* University of Jyväskylä Medal (Finland)
2008* Grand Prize of Japan Society for Computational Engineering and Science (JSCES)
2009* O.C. Zienkiewicz Medal of Polish Association for Computational Mechanics (PACM)
2009 Ted Belytschko Applied Mechanics Award of American Society of Mechanical Engineering (ASME)
2009* Computational Mechanics Award of Japan Society of Mechanical Engineering (JSME)
2010* Gauss-Newton Medal of International Association for Computational Mechanics (IACM)
2013 Argentinian Government Award *Dr. Luis F. Leloir* to Internat. Cooperation in Science, Techn. & Innovation
2018 Award of Ministry of Science of Cuba for the Development of Innovative Particle Methods
2021* Ritz-Galerkin Medal of European Community on Computational Methods in Applied Sciences (ECCOMAS).

Awards from organizations in Catalonia

1990* Narcís Monturiol Medal for Research. Catalonian Government.
1999 Accesit to City of Barcelona Award in Technological Research
1999 Narcis Monturiol Award to CIMNE (collected as founder & director of CIMNE). Catalonian Gov.
2001* Medal of School of Civil Engineering of UPC to Professional Achievements
2002* City of Barcelona Award in Technological Research
2004 Duran i Farell Award of UPC for Excellence of Research and Technology Transfer
2019* Ildefonso Cerdá Award of Institute of Civil Engineers of Catalonia

Awards from organizations in Spain

1995* Medal to Professional Merit of Spanish Institution of Civil Engineers.
2000* Award of Spanish Group for Fracture Mechanics.
2007* Award from Spanish Association for Numerical Methods in Engineering (SEMNI)
2020 Director of Scientific Program of CIMNE as a Severo Ochoa Center of Excellence for 2020-2023

Awards to scientific papers

2002, 2003 and 2009 Award for Best Paper published in Engineering Computations. Emerald Literari Club.

HONORARY DOCTORATES AND FELLOWSHIPS

2000 Doctor Honoris Causa, Ovidius University, Constanza, Rumania.
2005 Honorary Member of Portuguese Assoc. for Theoretical, Applied & Computational Mechanics
2007 Honorary Fellow of Swansea University (UK).
2012 Doctor Honoris Causa, INSA-Lyon, France.
2013 Doctor Honoris Causa, Universidad Las Villas, Cuba.
2020 Doctor Honoris Causa, Saint Petersburg Polytechnich University, Russia.

ACADEMY MEMBERSHIP

1997 Member of Royal Academy of Doctors (Barcelona).
2006 Foreign Member of the Accademia di Scienze e Lettere, Istituto Lombardo, Milan (Italy).

MAJOR COLLABORATIONS

Prof. Tomas Hughes, Stabilized num. methods, Inst. for Comput. Engng. Sciences, Univ. Texas, Austin, USA.

Prof. Michael Kleiber, Numerical methods in engineering, Polish Academy of Sciences, Poland

Prof. Rainald Lohner, CFD and particulate flows. School of Comp. Sciences,George Mason Univ., USA.

Prof. Manolis Papadrakakis, Num Methd for structural analysis and design, Civil Eng. Dpt. NTUA, Greece.

Prof. Kenjiro Terada, Numerical methods for analysis of structures in natural hazards. Research Institute of Disaster Science, Tohoku University. Japan

Prof. Peter Wriggers, Particle-based methods, Leibniz Univ. Hannover, Germany.

Prof. Tarek Zohdi, Particle-based methods, Mechanical Eng. Dpt., Univ. of California (Berkeley), USA

Barcelona, September 15th 2021