

RÉSUMÉ of Francesc Giralt

CURRENT POSITIONS

Professor Emeritus with Chair, Departament d'Enginyeria Química, Universitat Rovira i Virgili (URV), Av. dels Països Catalans, 26, 43007 Tarragona, Catalunya, Spain (Tel. +34 977 559 638; Fax +34 977 558 205; fgiralt@urv.cat); **Distinguished Researcher**, Generalitat de Catalunya, Spain; **Distinguished Professor at URV**; **Member of BioCENIT**, Bioinformatics & Computational Environmental Engineering Research Team at URV; **Member of ATIC**, Advanced Technology & Innovation Center at URV; **Visiting Scholar** at UCLA; **Member of the Center for Environmental Implications of Nanotechnology (CEIN)**, UCLA.

EDUCATION

Bachelor of Chemical Engineering, Institut Químic de Sarrià, Barcelona, Spain, 1970; **Bachelor of Chemistry**, Faculty of Chemistry, University of Barcelona, Spain, 1976; **Master of Applied Science** (Chemical Engineering), University of Toronto, Canada, 1973; **Ph.D.** (Chemical Engineering), University of Toronto, Canada, 1976; **Sc.D.** (Chemistry), University of Barcelona, Spain, 1977; **M.B.A.**, Institute of Chemical Technology, Barcelona, Spain, 1991.

AWARDS

Distinguished Researcher, Generalitat de Catalunya, Spain, 2004; **Distinguished Professor of the Universitat Rovira i Virgili** in recognition to excellence in teaching, research, transfer of technology and university service, Spain, 2003; **Quality Improvement Award in the 2nd Spanish action to improve quality in higher education**, granted by the Spanish University Council in recognition to the project "Towards the Global Engineer" implemented at the ETSEQ, Ministry of Education, Culture and Sports, Spain, 2002; **Jaume Vicens Vives Award** in recognition to the project-based cooperative learning project implemented at the ETSEQ to develop social and coaching competencies in students, Generalitat de Catalunya, Barcelona, Spain, 2001; **Honorable Mention** of the CAST Director's awards from the Computing and the Systems Technology Division of the AIChE for the work "Estimation of diverse physical properties of organic compounds with a modified Fuzzy ARTMAP neural system", Los Angeles, 2000; **Diploma of Distinguished Services to the City of Tarragona**, City Hall of Tarragona, Spain, 1999; **Narcís Monturiol Medal**, Award for Scientific and Technological Achievement in Catalonia, Generalitat de Catalunya, Barcelona, Spain, 1993; **Best Student Paper Presentation Award**, CSChE Conference, Montreal, Canada, 1974; **Salvador Gil Award** to the best Bachelor Thesis, Institut Químic de Sarrià, Barcelona, Spain, 1971.

FELLOWSHIPS AND HONORS

Gaspar de Portolà Fellowship, University of California at Berkeley, 1993; **Spanish Research Fellowship** for Visiting Professors (Visiting Scholar, Univ. of California at Santa Barbara; Sep-Dec 1993); **British Council Travel Fellowship** (Imperial College of London, 1987; Univ. of

Reading, 1988; University of Cambridge, 1989); **CIRIT Institutional Research Award** (Univ. of Barcelona, 1983); **CIRIT Research Awards** (Univ. of Barcelona, 1981 & 1982); **Univ. of Barcelona Research Awards** (1980, 1981, 1983 & 1984); 1978 & 1981: **Univ. of Barcelona Travel Fellowship** (Visiting Professor, Univ. of Toronto, 1978 & 1981); **Nato Science Postdoctoral Fellowship** (Institut de Mécanique Statistique de la Turbulence, Marsella, 1976/77); **National Research Council of Canada Fellowship** (Univ. of Toronto, 1973/76); **Province of Ontario Graduate Fellowship** (Univ. of Toronto, 1972/73); **Norman Stuart Robertson Fellowship** (Univ. of Toronto, 1971/72).

ACADEMIC EMPLOYMENT

Professor Emeritus with Chair, Departament d'Enginyeria Química, Universitat Rovira i Virgili, Tarragona (2009-); **Full Professor with Chair**, Departament d'Enginyeria Química, Universitat Rovira i Virgili, Tarragona (1992/09); **Full Professor with Chair**, University of Barcelona, Campus Tarragona, Tarragona (1986/92); **Associate Professor** of Chemical Engineering, University of Barcelona, Campus Tarragona, Tarragona (1977/86); **Adjunct Professor**, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto (1983/86 & 1995/01); **Research Associate**, Institut de la Mécanique Statistique de la Turbulence (CNRS), Marseille, France (1976/77); **Reader** of Transport Phenomena, Chemical Engineering Department, University of Toronto, Toronto (1974/76); **Teaching Assistant** of Thermodynamics and Chemical Reactors, Chemical Engineering Department, University of Toronto, Toronto (1971/74); **Teaching Assistant** of Chemical Engineering, Institut Químic de Sarrià, Barcelona (1970/71).

UNIVERSITY SERVICE

Director of the Centers of Innovation SIMPPLE & CiTQ, Tarragona (1999/09); **Patron of the University Foundation URV**, Tarragona (2000/02); **Member of the Social Council**, Rovira Virgili, Tarragona (1998/99); **Chairman of the Chemical Engineering Department**, Univ. Rovira Virgili, Tarragona (1996/99); **Member of the Governing Council**, Univ. Rovira Virgili, Tarragona (1996/99); **Dean of Engineering**, Univ. Rovira Virgili, Tarragona (1992); **Coordinator of the UETP PROJECTT**, COMETT II EU Program, Univ. of Barcelona (1991/92); **Director of APQUA**, Univ. of Barcelona (1988/91); **Patron of the University Foundation "Bosch i Gimpera"**, Univ. of Barcelona (1985/91); **Member of the Social Council**, Univ. of Barcelona (1985/89); **Director of the Chemical Technology Transfer Service STQ**, Univ. of Barcelona & Rovira Virgili, Tarragona (1983/01); **Chairman of the Chemical and Biochemical Engineering Department**, Univ. of Barcelona, Tarragona (1987/91); **Chairman of the Industrial Chemistry Department**, Univ. of Barcelona, Tarragona (1981/87); **Dean of the College of Chemistry**, Univ. of Barcelona, Tarragona (1977/1981); **Member of the Governing Council** of the Univ. of Barcelona, Barcelona (1977/89); **Member and President** of Several economic, academic and presidential committees of the University of Barcelona (1977/91).

SOCIETIES

American Society of Mechanical Engineers; American Institute of Chemical Engineers; American Physical Society; American Society for Engineering Education, Associació d'Enginyers Industrials de Catalunya; Institut d'Estudis Catalans.

PROFESSIONAL ACTIVITIES

Director of the Centre of Innovation CiTQ (2005/09); Member of the Board of Directors of the Catalan Agency for Waste Management (1994/08); Director of the Center of Innovation SIMPPLE (1999/04); Director of the Chemical Technology Transfer Service STQ (1983/01); Associate Editor of the Journal of Fluids Engineering (ASME, 1995/98); Member of the Scientific Committee of National and International Symposia; Reviewer of Journal of Fluid Mechanics, Physics of Fluids, International Journal of Heat and Mass Transfer, AIChE Journal, Canadian Journal of Chemical Engineering, Experiments in Fluids, Computers and Chemical Engineering, Industrial and Engineering Chemistry Research, etc.), and Research Agencies; Scientific and Engineering Consulting; Creation of two Spin-Off Companies.

RESEARCH ACTIVITIES

Areas of Interest: Experimental and computational environmental engineering & chemistry; Environmental/Ecological risk assessment; Nanoinformatics; (Q)SARs/nano-(Q)SARs and (Q)SPRs/nano-(Q)SPRs; Pattern recognition and classification; Physics of fluids and turbulent flows; Experimental and computational transport phenomena; Reaction engineering; Computational analysis of nanofiltration & reverse osmosis; Cooperative education in engineering.

Master and Doctoral Thesis: Supervision of 23 master theses and 34 Doctoral theses in the aforementioned areas of interest.

Projects and contracts: Direction of 193 research projects, 151 founded by industry and 42 by Local, Regional, National and European Administrations and Research Agencies. Realization of 67 consulting jobs.

Conference Presentations: Presentation of 244 papers at scientific meetings, 16 of which as invited keynote lectures.

Scientific Publications: 142 papers published in archival form in the top scientific and education journals.

Patents

Roberto Coll Frances; Francesc Giralt; José Luis Peña Díez. Bases lubricantes sintéticas por oligomerización de alfaolefinas con catalizadores metalocenos. Spain Patent P200700763, Issued March 22, 2007.

Cohen Y; Christofides PD; Giralt-Prat F. Advanced Monitoring, Optimization and Control of Membrane Desalination Processes. UC CASE NO. 2009-079.

Selected Archival Publications

Rallo R; France B; Liu R; Nair S; George S; Damoiseaux R; Giralt F; Nel A; Bradley K; Cohen Y. Self-Organizing Map Analysis of Toxicity-Related Cell Signaling Pathways for Metal and Metal Oxide Nanoparticles. *Environmental Science & Technology*. 45: 1695-1702 (2011).

Puigjaner D; Herrero J; Simó C; Giralt F. From steady solutions to chaotic flows in a Rayleigh-Bénard problem at moderate Rayleigh numbers. *Physica D*. 240: 920-934 (2011).

Martínez I; Grifoll J; Giralt F; Rallo R. Multimedia environmental chemical partitioning from molecular information, *Science of the Total Environment* 409: 412-422 (2010).

Nendza M; Aldenberg T; Benfenati E; Benigni R; Cronin M; Escher S; Fernandez A; Gabbert S; Giralt F; et al. Data quality assessment for in silico methods: A survey of approaches and needs. In: Cronin M, Madden J (eds): *In Silico Toxicology. Principles and Applications*, RSC Publishing, Cambridge, UK, 2010. [ISBN: 978-1849730044]

Sorensen PB; Giralt F; Rallo R; Espinosa G; Münier B; Gyldenkaerne S; Thomsen M. Conscious worst case definition for risk assessment, part II: A methodological case study for pesticide risk assessment, *Science of the Total Environment* 408: 3860-3870 (2010)

Mandava VSR; Kopp GA; Herrero J; Giralt F. Experimental Investigation of the Wake of a Discontinuous Cylinder. Proceedings ASME 3rd Joint US-European Fluids Engineering Summer Meeting, FEDSM2010-ICNMM2010 Conference, ASME Press, Conference FEDSM2010-ICNMM2010) Paper No. 30498 (2010).

Simó C; Puigjaner D; Herrero J; Giralt F. Dynamics of particle trajectories in a Rayleigh-Bénard problem, *Comm. in Nonlinear Science and Numerical Simulation* 15: 24-39 (2010)

Herrero J; Giralt F; Puigjaner D; Simo C. Mixing by thermal convection in a biochemical reactor. Proceedings of the 2nd WSEAS International Conference on Finite Differences, Finite Elements, Finite Volumes, Boundary Elements (F-and-B 09), Eds. Botchorishvili R; Davitashvili T; Sirbiladze G; Sikharulidze A. WSEAS Press, Athens, Greece, pp. 45-50 (2009). [SBN: 978-960-474-089-5; INSPEC: 10798736]

Lyster E., Au J., Rallo R., Giralt F., Cohen Y. Coupled 3-D Hydrodynamics and Mass Transfer Analysis of Mineral Scaling-Induced Flux Decline in a Laboratory Plate-and-Frame. Reverse Osmosis Membrane Module, *Journal of Membrane Science* 339: 39-48 (2009)

Fernandez A; Rallo R; Giralt F. Uncertainty Reduction in Environmental Data with Conflicting Information, *Environmental Science & Technology* 43(13): 5001-5006 (2009)

Gavalda X; Ferrer-Gener J; Kopp GA; Giralt F; Galsworthy J. Simulating Pressure Coefficients on a Circular Cylinder at $Re = 106$ by Cognitive Classifiers, *Comp. & Struct.* 87: 838-846 (2009)

Libotean D; Giralt J; Giralt F; Rallo R; Wolfe T; Cohen Y. Neural Network Approach for Modeling the Performance of Reverse Osmosis Membrane Desalting, *J. Memb. Sci.* 326: 408-419 (2009)

Al-Shannag M; Al-Qodah Z; Herrero J; Humphrey JAC; Giralt F. Using a wall-driven flow to reduce the external mass-transfer resistance of a bio-reaction system, *Biochemical Engineering Journal* 39: 554-565 (2008)

Libotean D; Giralt J; Rallo R; Cohen Y; Giralt F; Ridgway HF; Rodriguez G; Phipps D. Organic Compounds Passage through RO Membranes, *Journal of Membrane Science* **313**: 23-43 (2008)

Puigjaner D; Herrero J; Simo C; Giralt F. Bifurcation analysis of steady Rayleigh-Bénard convection in a cubical cavity with conducting sidewalls, *J. Fluid Mech.* **598**: 393-427 (2008)

Valencia C; Espinosa G; Giralt J; Giralt F. Optimization of invertase production in a fed-batch bioreactor using simulation based dynamic programming coupled with a neural classifier, *Computers & Chemical Engineering* **31**: 1131-1140 (2007)

Guimera R; Danon L; Diaz-Guilera A; Giralt F; Arenas A. The real communication network behind the formal chart: Community structure in organizations, *Journal of Economic Behavior & Organization* **61**: 653-657 (2006)

Puigjaner D; Herrero J; Giralt F; Simo C. Bifurcation analysis of multiple steady flow patterns for Rayleigh-Bénard convection in a cubical cavity at $Pr = 130$, *Phy. Review E* **73**(4): 46304 (2006)

Rallo R; Espinosa E; Giralt F. Prediction of Modes of Toxic Action and toxicity of phenols with feature selection algorithms coupled with fuzzy ARTMAP, *Proceedings of the Joint Meeting on Medicinal Chemistry*, Vienna, Eds. P. Ettmayer and G. Ecker, Medimont SRL, **F620C0176**: 27-33 (2005). (ISBN 88-7587-163-9)

Rallo R; Espinosa G; Giralt F. Using an ensemble of neural based QSARs for the prediction of toxicological properties of chemical contaminants, *Trans IChemE Part B. Process Safety and Environmental Protection* **83**(B4): 387-392 (2005)

Puigjaner D; Herrero J; Simo C; Giralt F. Stability analysis of the flow in a cubical cavity heated from below, *Physics of Fluids* **16**(10): 3639-3655 (2004)

Giralt F; Espinosa G; Arenas A; Ferre-Gine J; Amat L; Girones X; Carbo-Dorca R; Cohen Y. Extraction of molecular features with self-organizing maps to estimate infinite dilution activity coefficients of organic compounds in water by a fuzzy ARTMAP neural classifier, *AIChE Journal* **50**(6): 1315-1343 (2004)

Guimera R; Danon L; Díaz-Guilera A; Giralt F; Arenas A. Self-similar community structure in a network of human interactions, *Physical Review E* **68**: 065103 (R) (2003)

Yaffe D; Cohen Y; Espinosa G; Arenas A; Giralt F. A fuzzy ARTMAP based Quantitative Structure-Property Relationship (QSPR) for the Henry's Law Constant of Organic Compounds, *Journal of Chemical Information and Computer Sciences* **43**: 85-112 (2003)

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