

**Manuel García VELARDE**

**CV**

**<http://www.ucm.es/info/fluidos>**

Manuel Garcia **VELARDE**, Almeria (Espana/Spain), 14 Sept. 1941/Sept. 14th, 1941.

Estado Civil/Family status: Casado/Married (esposa/wife: Maria del Pilar; hijos/children: Alberto-1966, Uriel-1969, & Esther-Adelaida-1977; grand children: Luis, Daniel, Javier & Diego).

Situacion actual/Present Professional Status: **Emeritus Professor/Catedratico Emerito UCM (2011-present)**

**Quinquenios** docentes reconocidos: 6 (max.) (Civil Service Top Teaching Achievement award).

**Sexenios** investigadores reconocidos: 6 (max.) (Civil Service Top Research Achievement award).

**Calificacion Comunidad de Madrid:** 10 (max.) (Yearly Civil Service Top Research Achievement award).

#### **HONOR**

1. 1981 Best Teacher award, NATO ASI on NONLINEAR PHENOMENA AT PHASE TRANSITIONS AND INSTABILITIES, Geilo (Norway).
2. 1991 Premio FISICA (Investigacion cientifica), Real Academia de Ciencias Exactas, Fisicas y Naturales (Madrid).
3. 1992 Premio "Creativity", CAPIRE Foundation (Firenze/Florenzia).
4. 1993 Member *Academia Europæa*.
5. 1994 Docteur *Honoris Causa*, Universite de Provence-Aix-Marseille I (France).
6. 1994 Palmes Academiques, Republique Française.
7. 1996 Medaille RAMMAL (Societe Française de Physique & Fondation Ecole Normale Superieure).
8. 2000 Member Real Academia de Doctores (Spain).
9. 2002 *Festschrift* (60th birthday) "Spatio-Temporal Complexity" (Editor: G. Nicolis) Special Issue: *International Journal of Bifurcation and Chaos* **12** (2002) 2305-2653.
10. 2003 Premio *DuPont* de la Ciencia (Spain & Portugal).
11. 2003 Uva de Oro/Gold Grape (Casa de Almeria y de la Alpujarra en Madrid/Almeria in Madrid).
12. 2005 Honorary Rector (CISM, Udine, Italy).
13. 2006 "Medalla", Real Sociedad Española de Fisica/Medal of Spanish Physical Society.
14. 2009 "Paul Harris Fellow", Medal of Foundation Rotary International.
15. 2010 Doctor *Honoris Causa*, Chernyshevsky Saratov State University (Russia)

#### **EDUCACION/EDUCATION**

(i) Universidad Complutense de Madrid (Espana) 1959-1963: Licenciatura en Ciencias Fisicas/ PHYSICS (Graduate and M. Sc.).

- (ii) Universidad Complutense de Madrid (Espana) 06-11-1968: Doctor en Ciencias Fisicas (equivalent to Ph. D.), "Sobresaliente *cum laude*". Director: M. Castans. Presidente Tribunal: F. Navarro Borrás (deceased).
- (iii) Universite Libre de Bruxelles (Belgique) 20-01-1970: Docteur en Sciences Physiques (equivalent to Ph. D.), "Avec la *plus grande distinction*". Director: P. Resibois (deceased). President du Jury: I. Prigogine (deceased).

**RESEARCH AND/OR EXPERIENCE/POSITIONS HELD/  
EXPERIENCIA** (docente o/e investigadora un mes o mas)

**A. Professional career**

1. **1963-65** Universidad Complutense (Madrid): Ayudante/Instructor/Teaching Assistant "Mecanica Teorica" (4º Fisicas) & Ayudante/Instructor/Teaching Assistant "Ecuaciones Diferenciales (Analisis Matematico)" (3º Fisicas).
2. **1963-65** Junta de Energia Nuclear, Division de Fisica Teorica (Madrid): Becario predoctoral.
3. **1964-65** Escuela Tecnica Superior de Arquitectura (Madrid): Prof. Encargado de curso de "Fisica".
4. **1965-69** Universite Libre de Bruxelles (Belgica): Ph. D./Doctorando (1965-68) & Chercheur (1968-69).
5. **1969-71** University of Texas at Austin (EE.UU.): Faculty Associate (Center of Excellence, National Science Foundation, EE.UU.) equivalente a Assistant Professor.
6. **1970** University of Montana at Bozeman (EE.UU.): Investigador Visitante/Guest Researcher (National Science Foundation), July-August.
7. **1971-80** Universidad Autonoma de Madrid: Profesor Agregado & Catedratico/ Associate Professor and (Full) Professor ("Termodinamica Estadistica" & "Mecanica Estadistica"/Statistical Physics) & Director-fundador Departamento de "Fisica de Fluidos"/**Chairman & founder Department of Fluid Physics.**
8. **1979-93** U.N.E.D./Spanish Open University: Catedratico/Full Professor & Director Departamento de "Fisica Fundamental" (1979-87; Julio 1980 traslado oficial de la Universidad Autonoma de Madrid) y fundador/Chairman & **founder Department of Physics.**
9. **1993-2011.** Universidad Complutense de Madrid: (PROPIO) Professor of Physics/Catedratico de Fisica Aplicada/Fisica de Fluidos (Programa **PROPIO-MEC**). Director Unidad de Fluidos y cofundador/**co-founder Instituto Pluridisciplinar.** 1997-98; 2008-11, Director Institute (Civil Service/Registro personal: 01EC1888 (30.03.79)/ 2713014468A0500).
10. **1993-96** ATENEO Cientifico, Artístico y Literario de Madrid (1993 y 1994 Fundacion del BBV, Director de la CATEDRA de FISICA/BBV Foundation Chair for Science for the Lay audience.

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**B. Invited/Visiting positions, etc**

1. 1972-73 Universitet i Trondheim-N.T.H. (Noruega), Institutt for Teoretisk Fysikk,: Guest Researcher (Norges Allmennvitenskapelige Forskningsrad), December 1972-January 1973.
2. 1974 Universite Paris XI, Orsay (Francia), Physique Theorique: Chercheur etranger invite (C.N.R.S.), January.
3. 1974 Universite Paris VI (Francia), Physique Theorique des Liquides: Professeur invite, November-December.
4. 1974 C.E.N. Saclay (Francia), Physique Theorique, Orme des Merisiers: Chercheur etranger invite (comme Ingenieur), November-December.
5. 1975 Universitet i Trondheim-N.T.H. (Noruega), Institutt for Teoretisk Fysikk: Guest Researcher (Norges Allmennvitenskapelige Forskningsrad), July-November.
6. 1976 University of London (U.K.), Chemistry Department, Chelsea College: Visiting Research Associate; Mathematics Department, Imperial College: Guest Researcher, July-August.
7. 1976-80 Universite de Provence (Aix-Marseille I) (Francia): Invited Professor (A.T.P. Internationale C.N.R.S.). One or several months per year over a five-year period.
8. 1978 Universitet i Trondheim-N.T.H. (Noruega), Institutt for Teoretisk Fysikk: Invited Professor (Norges Allmennvitenskapelige Forskningsrad), July-November.
9. 1984 Universite Aix-Marseille II (Francia), Institut de Mecanique des Fluides: Professeur invite, January-February.
10. 1984-94 Los Alamos National Laboratory, N. M. (EE.UU): Consultant. Several weeks or months per year.
11. 1985 Universite de Grenoble (Francia): Professeur invite, May.
12. 1986 University of Science and Technology (HUST, Wuhan, Huazhong, Central China, Rep. Pop. China): Invited Lecturer (20h-Lecture Series on Hydrodynamic Instabilities), January.
13. 1988 University of Sofia (Bulgaria), (Centennial/Centenario de la Universidad: Invited Lecturer, December.
14. 1989 Universidad de Paris-VI (Francia): Professeur invite, May.
15. 1990 Stanford University (EE.UU.): Guest Researcher (Consultant), September.
16. 1993 Stanford University (EE.UU.): Guest Researcher (Consultant), August.
17. 1995 Universite Aix-Marseille III (Francia): Professeur invite, November.
18. 1996 Cambridge University (U.K.), DAMPT: (BBV Foundation) Visiting Professor, April-June.
19. 1997 University of California, Berkeley (EE.UU.): Visiting Scientist (Consultant), August-September.
20. 2000 Universite de Marne-La Vallee, Paris (Francia): Professeur invite, April.
21. 2000 Universite Libre de Bruxelles (Belgica): Professeur invite, November.
22. 2002-05 International Center for Mechanical Sciences (CISM, Udine, Italia): Rector.
23. 2006 Universite Libre de Bruxelles (Belgica): Chaire Internationale, March.
24. 2006 University of California, Santa Barbara (EE.UU.): Del Amo Visiting Scholar & Visiting Professor, June-August.

25. 2007 East China Normal University (Shanghai): Visiting Professor, July.
26. 2011-present Wessex Institute of Technology (WIT, Southampton, UK): Adjunct Professor.
27. 2012 University of California, Irvine (EE.UU.): Del Amo Visiting Scholar & Visiting Professor, July-August.

N.B.: I have also been in several other Institutions for periods of two or three weeks (collaboration agreements or short-research grants using Bilateral Treaties, NATO CRGs, EU, Volkswagen Stiftung grant, etc.).

**ADVISORY OR CONSULTANCY BOARD OF LABORATORIES OR SOCIETIES, COMMITTEE MEMBERSHIP/COMITES INTERNACIONALES, etc.**

1. Consultant LOS ALAMOS National LAB-CNLS (New Mexico, USA., under contract: 1984-94).
2. Committee "Liquids", EPS (1982-94, **co-founder**).
3. MEC: Comision de Reforma de la Educacion 10-16 anos, Madrid (1983).
4. ESA: European Space Agency, Committee "Materials & Fluids in Microgravity" (1986-88), "Surface Phenomena" (1990-93) & Peer Reviewer.
5. IUPAP Commission C3 "Statistical Physics" (1987-93).
6. Internat. Centre Heat & Mass Transfer, Scientific Council, Ankara, Turkey (1987-present).
7. CERET, Centre Europeen de Thermodynamique-Paris (1990-94, **co-founder**).
8. NATO, Panel Member "Chaos, Order and Patterns: Aspects of Nonlinearity" (1990-93).
9. Association Recherche et Environnement, Aix-Marseille, Conseil Administration, (1993-present, **co-founder**).
10. EEC-Commission, Human Capital & Mobility, Panel member (Physics) Bruselas (1992-94).
11. European Low Gravity Research Association, Consultant: ELGRA-White Book European Low-Gravity Physical Sciences in Retrospect and in Prospect, Peer Review Author: Fluid Physics & Critical Phenomena (1994-95).
12. ESA-MAC: Microgravity Advisory Committee (1994-97).
13. ELGRA, Vicepresident (1995-97), President (1997-99).
14. EU, Training and Mobility of Researchers, Panel Member (Physics: Fellowships & Networks) Bruselas (1995).
15. Association for the *Collegium Catedra* FBBV, President (1999).
16. International Centre for Mechanical Sciences (CISM), Udine, Scientific Council (2002-present).
17. International Union of Theoretical and Applied Mechanics, IUTAM Conference Committee (2002-2010).
18. *Academia Europæa*, Council (2002-2008).
19. European Science Foundation (ESF)-European Space Science Committee (ESSC) (2006-2009).
20. Real Academia de Doctores (Spain), Presidente/Chair Seccion Ciencias Experimentales (2007-2009).

21. International Center "Nonlinear Dynamics and Complex Systems", Pescara, Scientific Council (2009-present).
22. Comité Ciencias Experimentales, ACUCM, Castilla-La Mancha (Presidente).
23. Comité Internacional Expertos Evaluación de la Física en la Universidad Libre de Bruselas (2009).
24. Jurado Internacional Evaluación Laboratorios de Excelencia en Francia (LABEX Jury), President (2010-11).
25. Jurado Internacional Evaluación de Campus de Excelencia (IDEX Jury) (2011).

**EDITORIAL/ADVISORY BOARDS/COMITES EDITORIALES (Present and Past membership/ Ha sido o es miembro)**

1. Journal of Non-Equilibrium Thermodynamics (1976-present; **co-founder**).
2. International Journal of Heat and Mass Transfer (1977-present).
3. Letters in Heat and Mass Transfer (1977-present).
4. Journal de Physique (1977-84).
5. Journal de Physique-Lettres (1977-84).
6. Reports on Mathematical Physics (1977-84).
7. Physicochemical Hydrodynamics (1979-88; **co-founder**).
8. Applied Mechanics Reviews (1979-reviewer).
9. Revista Española de Física (1987-93).
10. Portugaliae Physica (1990).
11. Anales de Física (1992-99).
12. Nonlinear Processes in Geophysics (1993-96; **co-founder**).
13. International Journal Bifurcation and Chaos (1995-present).
14. Revue Marocaine des Sciences Physiques (1998).
15. Synergetics Series, Springer-Verlag, Berlin, Heidelberg & N.Y. (1999-2006).
16. Comptes Rendus de l'Academie des Sciences, Serie II b (Mecanique) Paris (1999-2011).
17. European Physics Journal, Special Topics (Discussion & Debate), Co-Editor (2009; **co-founder**).

"Referee" or "(peer) reviewer" of several scientific journals, research projects (NSF-USA, NASA, ESA, CEE-EU, NATO, NOBEL Committee for Physics, etc.), University appointments (several universities in Europe and in the USA)/Juez de varias revistas internacionales y en numerosisimas ocasiones, de proyectos de investigacion de diversas Agencias; Miembro o Presidente de Tribunal de Tesis Doctoral y de nombramiento-promocion profesorado, particularmente en Francia, EE.UU. y U.K.

**PROFESSIONAL SOCIETIES/SOCIEDADES CIENTIFICAS** Present membership: **Academia Europaea**, EUROMECH, Royal Institution (London), Real Academia de Doctores (Spain).

**CHAIRPERSON-DIRECTOR-ORGANIZER/DIRECTOR-PRESIDENTE COMITE INTERNACIONAL**

1. 1972 Workshop/Reunion STATISTICAL PHYSICS/FISICA ESTADISTICA, Sevilla, April (organizer and speaker).

2. 1976 Summer School and Workshop/Escuela-Reunion Hispano-Francesa, FISICA DE FLUIDOS, Sevilla, September (with P. G. de Gennes).
3. 1980 3<sup>rd</sup> International Conference, PHYSICOCHEMICAL HYDRODYNAMICS, Madrid, April.
4. 1983 NATO Advanced Study Institute, NON-EQUILIBRIUM COOPERATIVE PHENOMENA IN PHYSICS AND RELATED FIELDS, El Escorial, August (with F. T. Arecchi & M. O. Scully).
5. 1986 International Symposium/Jornadas Internacionales, FLUID PHYSICS/FISICA DE FLUIDOS, Fundacion Ramon Areces, Madrid, May.
6. 1986 NATO Advanced Study Institute and 2nd EPS LIQUIDS SECTION International Conference, PHYSICOCHEMICAL HYDRODYNAMICS: INTERFACIAL PHENOMENA, La Rabida, Huelva, July.
7. 1987 Workshop/Jornadas, FLUID PHYSICS/FISICA DE FLUIDOS, Cordoba, June.
8. 1987 International Symposium/Jornadas Internacionales, SYNERGETICS, ORDER & CHAOS (to honor Prof. Dr. H. HAKEN), Fundacion Ramon Areces, Madrid, October.
9. 1990 UCM-Summer School/Curso de verano, Universidad Complutense, PROGRESS IN FLUID PHYSICS, Aguadulce (Almeria), August.
10. 1990 International Symposium/Jornadas Internacionales, PHYSICOCHEMICAL HYDRODYNAMICS/FISICOQUIMICA DE FLUIDOS, Fundacion Ramon Areces, Madrid, October.
11. 1991 UNED-Summer School/Curso de verano, FISICA PARA TODOS: COMPLEJIDAD, ORDEN Y CAOS EN LA NATURALEZA, Avila, July.
12. 1991 UCM-Summer School/Curso de verano, Universidad Complutense, HYDRODYNAMIC INSTABILITIES AND INTERFACIAL PHENOMENA, Aguadulce (Almeria), August.
13. 1992 UCM-Summer School/Curso de verano, Universidad Complutense, WAVES, Aguadulce (Almeria), July.
14. 1992 4th. IUPAP-International Conference TEACHING MODERN PHYSICS. STATISTICAL PHYSICS, Badajoz, July.
15. 1993 International Symposium/Jornadas Internacionales, INTERFACIAL PHENOMENA ON EARTH AND IN SPACE, Madrid, February.
16. 1993 UCM-Summer School/Curso de verano, Universidad Complutense, TURBULENCE, Aguadulce (Almeria), July.
17. 1994 Summer School/Curso de verano (para profesores de Bachillerato/for High School teachers), ATENEO de Madrid e Instituto de Bachillerato "Cervantes", Laboratorio Multimedia en la Enseñanza de la Fisica (Optica con Laser, LAO, Experimentos con peliculas), July.
18. 1994 Summer School/Curso de verano (para profesores de Bachillerato/for High School teachers), ATENEO de Madrid, CAOS Y FRACTALES, July.
19. 1994 UIMP-Summer School/Curso de verano, Universidad Internacional "Menendez Pelayo" (UIMP), PCH School: CHAOS AND TURBULENCE, Santander, September (with A. Linan).
20. 1994 European Low Gravity Research Association (ELGRA) XIII<sup>th</sup> Assembly, Madrid, December (as Chairman Organizing Committee).

21. 1995 UIMP-Summer School/Curso de verano, Universidad Internacional "Menendez Pelayo" (UIMP), PCH School: EXPERIMENTAL TECHNIQUES AND NUMERICAL METHODS, Santander, July (with A. Linan).
22. 1995 UCM-Summer School/Curso de verano, Universidad Complutense, POLYMERIC MATERIALS: PHYSICS, CHEMISTRY AND HYDRODYNAMICS, Aguadulce (Almeria), July (with E. Riande).
23. 1995 International Symposium/Jornadas Internacionales, CHAOS AND FRACTALS. THE NEW PARADIGM, Fundacion Ramon Areces, Madrid, December.
24. 1996 UIMP-Summer School/Curso de verano, Universidad Internacional "Menendez Pelayo" (UIMP), PCH School: DROPS, BUBBLES AND FILMS, Santander, September.
25. 1997 Joint Xth European and VIth Russian Symposium, PPhysical Sciences in Microgravity, St.Petersburg-Kijy Island (on ship), Russia, June (with V. I. Polezhaev, Russia, and F. Rosenberger, USA).
26. 1997 EU Network Workshop, PATTERNS, WAVES AND DEFECTS, Coordinator and lecturer, Madrid, July-August.
27. 1997 Summer School & Workshop/Curso de verano, Gulbenkian International Advanced Course INTRODUCTION TO DYNAMICAL SYSTEMS: THEORY FOR BIOSCIENCE STUDENTS, Porto (Portugal), August.
28. 1998 EU Network Workshop, FROM UNITS TO SYNERGETICS IN NEUROBIOLOGY, Coordinator and lecturer, Madrid, February.
29. 1998 UNESCO sponsored Spring School & Workshop, FLUID PHYSICS AND NON LINEARITY, Marrakech (Morocco), April (with M. Belhaq & E. Guyon).
30. 1998 EU Network Workshop, TIME SERIES ANALYSIS, DATA PROCESSING, DELAY PROBLEMS, NONLINEAR WAVES, STOCHASTIC PROCESSES, ETC. IN NEUROBIOLOGY AND OTHER REALMS OF SCIENCE, Coordinator and lecturer, Madrid, May.
31. 1998 Workshop, INTERNAL WAVES IN THE ALBORAN SEA, THE STRAIT OF GIBRALTAR AND OTHER STRATIFIED MEDIA, Madrid, July.
32. 1998 IUPAP-XX SATELLITE Workshop, INTERFACIAL PHENOMENA, Madrid, July.
33. 1998 EU Network Workshop, LATTICE DYNAMICS, NEURAL NETWORKS & BRAIN DYNAMICS, Madrid, November.
34. 1998 EU Network Workshop, INTERFACIAL PHENOMENA, Madrid, November-December.
35. 1999 European Low Gravity Research Association (ELGRA) Biennial Meeting and General Assembly, Roma, March (as ELGRA President).
36. 1999 1st Symposium Catedra FBBV "Permeability of Ideas and Human Knowledge", Madrid, April (with J. Urrutia).
37. 1999 EU-Network & UCM-Summer School/Curso de verano, NONLINEARITY: PATTERNS AND DEFECTS, SOLITONS, CHAOS AND TURBULENCE, EI Escorial (Madrid), July.
38. 1999 UIA-Summer School/Curso de verano, PHYSICOCHEMICAL HYDRODYNAMICS, La Rabida (Huelva), August (with C. Gallegos).

39. 1999 Discussion, DYNAMICAL SYSTEMS, CEREBELLAR DYNAMICS AND (NEURO) ROBOTS, Madrid, October.
40. 1999 Discussion, INTERFACIAL PHENOMENA AND DIMENSIONLESS GROUPS, Madrid, December.
41. 2000 Discussion, DYNAMICAL SYSTEMS AND NEUROINSPIRED ROBOTS, Madrid, March.
42. 2000 Discussion, DISSIPATIVE SOLITONS, NONLINEAR EXCITATIONS (lattices, etc.) AND HIGH-T SUPERCONDUCTIVITY, Madrid, June.
43. 2000 CISM-Summer School/Curso de Verano, INTERFACIAL PHENOMENA, THE MARANGONI EFFECT, INSTABILITY, WAVES AND CONVECTIVE FLOWS, Udine (Italy), July (with R. K. Zeytounian).
44. 2000 Ciclo de Conferencias, PROCESOS FISICOQUIMICOS REACTIVOS-DIFUSIVOS E INNOVACIONES EN EL TRATAMIENTO DE INFECCIONES OSEAS EN CIRUGIA ORTOPEDICA, Real Academia de Doctores, Madrid, November (with C. Rueda).
45. 2001 Discussion, NONLINEAR DYNAMICS (LATTICES, WAVES, INSTABILITIES AND FLUCTUATIONS), Madrid, January.
46. 2001 EU ICOPAC Network & UCM Summer School & Workshop/Curso de verano, INTERFACIAL PHENOMENA: WETTING AND SPREADING OF LIQUIDS, El Escorial (Madrid), July (with R. Glez. Rubio).
47. 2002 Workshop, NEURONAL FLOWS, MOTRICITY AND NEUROINSPIRED ROBOTS, Madrid, March.
48. 2002 EU-Discussion, FALLING FILMS AND NONLINEAR LONG WAVES, Madrid, December.
49. 2003 Discussion, FALLING FILMS, WETTING AND SPREADING PROCESSES, Madrid, August.
50. 2004 Discussion, STOCHASTIC NONLINEAR LATTICE DYNAMICS, Madrid, March.
51. 2004 Discussion, PHYSICOCHEMICAL PROBLEMS OF THE COFFEE EXPRESSO BEVERAGE, Madrid, March.
52. 2004 Discussion, MODELLING NEURODYNAMIC PROCESSES, Madrid, April.
53. 2004 Discussion, SUPERCONDUCTIVITY IN NONLINEAR LATTICES, Madrid, August.
54. 2005 EU Network Workshop, SPATIAL TEMPORAL PATTERNS FOR ACTION-ORIENTED PERCEPTION IN ROVING ROBOTS, Madrid, January.
55. 2005 Discussion, SOLITONS IN ANHARMONIC LATTICES, Madrid, February.
56. 2005 Discussion, SPREADING DYNAMICS (SURFACTANTS, ETC.), Madrid, March.
57. 2005 Discussions, FALLING FILMS, Madrid, April, August & November.
58. 2005 Discussion, STOCHASTIC TRANSPORT AND ACTIVE BROWNIAN MOTORS, Madrid, May.
59. 2005 Discussion, INTERFACIAL PHENOMENA, PATTERNS AND WAVES, Madrid, August.
60. 2005 Discussion, POLYMERS AT SURFACES, Madrid, September.

61. 2005 Discussion, SOLITONS, NONLINEAR CONDUCTION AND NONLINEAR PLASMAS, Madrid, October.
62. 2005 Discussion, FILM FLOWS, Madrid, November.
63. 2006 Discussion, ANHARMONIC TRANSPORT PROCESSES, Madrid, January, April & October.
64. 2006 Discussion, FILM FLOWS, Madrid, May.
65. 2007 Discussion, PROCESOS INTERFACIALES NO LINEALES, Madrid, February.
66. 2007 Discussion, DINAMICA ANHARMONICA Y CONDUCCION ELECTRICA SUPERSONICA, Madrid, February, April & August.
67. 2007 Discussion, PROBLEMAS NO LINEALES DE TRANSPORTE ELECTRICO, Madrid, November/December.
68. 2008 Discussion, PROBLEMAS NO LINEALES DE TRANSPORTE ELECTRICO, Madrid, April & July.
69. 2008 EUcognition & SPARK Summer School/Curso de Verano, NONLINEAR DYNAMICS AND ROBOTS: FROM NEURONS TO COGNITION, El Escorial (Madrid), August.
70. 2008 Discussion, MODELOS NEURODINAMICA Y ROBOTS, Madrid, September & December.
71. 2009 Discussion, BIPOLARONS, SOLELECTRONS, ELECTRON PAIRING AND SUPERCONDUCTIVITY, Madrid, February.
72. 2009 Discussion, ANHARMONIC LATTICES IN ONE-DIMENSION AND TWO-DIMENSIONS, Madrid, April.
73. 2009 Workshop and International Conference, NONLINEAR DYNAMICS, Pescara (Italy), July.
74. 2009 EXPLORA Discussion, MARCUS THEORY OF ET AND TUNNELING PROCESSES, Madrid, November.
75. 2010 EXPLORA Discussion, SUPERCONDUCTION AT ROOM TEMPERATURE? Madrid, February.
76. 2010 EXPLORA Discussion, PERCOLATION IN TWO-DIMENSIONAL LATTICES, Madrid, April.
77. 2010 MULTIFLOW SUMMERSCHOOL (MARIE CURIE TRAINING SCHOOL), El Escorial, June.
78. 2010 EXPLORA Discussion, BCS-BCE CROSS-OVER PHENOMENA, Madrid, August.
79. 2010 EXPLORA Discussion, NONLINEAR (1D-2D) LATTICE SOLITONS, Madrid, November.
80. 2011 EXPLORA Discussion, SOLITONS IN HEATED LATTICES, Madrid, January.
81. 2011 EXPLORA Discussion, MULTISOLITONS IN ANHARMONIC LATTICES, Madrid, April.
82. 2011 EXPLORA Discussion (7-10) and WEEK OF SCIENCE (12-16), Madrid, September

**Ph.D. THESES/TESIS DOCTORALES (DIRECTOR/SUPERVISOR):**

UNIV. COMPLUTENSE (5), UNIV. AUTONOMA MADRID (2), U.N.E.D. (16), HUMBOLDT UNIV. BERLIN (1).

**MASTER THESES/TESINAS:** UNIV. AUTONOMA MADRID (14).

**VARIA (PLACES WHERE -generally, by invitation- I HAVE DELIVERED LECTURES, SCIENTIFIC COLLOQUIA & SEMINARS IN SPAIN AND OTHER COUNTRIES/INSTITUCIONES, ESCUELAS, LUGARES, ETC. DONDE HE IMPARTIDO SEMINARIOS O CONFERENCIAS, generalmente por invitacion)**

- 0. Schools/Conferences Plenary Speaker/Lecturer:** Les Houches (France), E. FERMI-Varenna (Italy), SYNERGETICS-Elmau (Germany), NATO-ASI-Geilo (Norway), GULBENKIAN-Porto & Arrabida (Portugal), CISM-Udine (Italy), IUPAP (Statphys)-Xiamen (PR China), EPS (Liquids)-various places, Dynamics Days-Como (Italy), EUROMECH-Cambridge (UK), EURO THERM-Delft (Holland), CERET-Compiègne (France), GORDON Conference-Plymouth (USA), UIMP-Santander (Spain), UIA-La Rabida (Spain), UCM-El Escorial (Spain), etc.
1. Participant all over the world at several hundred scientific meetings, generally by invitation as a speaker or as chairperson/He asistido a varios centenares de reuniones científicas internacionales en las que (salvo contados casos) he sido conferenciante invitado o presidente sesion.
  2. Miembro del Comité Científico Internacional (Programme Committee, Advisory Board, etc) de numerosas Reuniones Internacionales.
  3. Invited Research Seminars, Colloquia & other Lectures/Sobre mi trabajo he dado conferencias y seminarios científicos en Universidades y Centros de Investigación en:
    - i. **Espana-Spain** (numerosas veces en centros de investigación y universidades).
    - ii. **Europe (Alemania:** Free Univ. & T. U. Berlin-Oeste y Humboldt U.-Berlin-Este, Rostock, Bremen, Karlsruhe, Kiel, Hamburg, Bayreuth, Köln, Dusseldorf, Stuttgart, Munich, Schloss Elmau, Tubingen, Göttingen, Wiesbaden; **Austria:** Vienna, Linz; **Belgica:** ULB, Academie des Sciences, von Karman Inst.-Bruselas, Mons, Liege, Louvain; **Bulgaria:** Sofia; **Checo-eslovaquia:** Praga; **Dinamarca:** Copenhagen, Lyngby, Odense; **Francia:** CEN-CEA-Saclay, Paris-Orsay, Paris VI, Paris VII, EPC-Paris, ENS-Paris, Poitiers, Compiègne, Grenoble, Rouen, Montpellier, Les Houches, Lyon, Menton, Marseille, Isle Embiez, Toulouse, Bordeaux, Estrasburgo, Nice, Poitiers, Peyresq; **Holanda:** Delft, Inst. Lorentz-Leiden, Amsterdam, ESTEC-ESA-Norwick, Wageningen; **Hungria:** Budapest, Balaton; **Italia:** Roma, Milano, Florencia, Trieste, Pisa, Varenna, Como, Messina, Napoles, Udine, Sorrento, Catania; **Polonia:** Varsovia; **Portugal:** Lisboa, Porto, Covilha, Arrabida Monastery; **Suiza:** Ginebra, ETH-Lausanne, Zurich; **Noruega:** NTH-Trondheim, Kristiansand, Grimstad, Geilo, Oslo; **Suecia:** RIT-Estocolmo, Uppsala; **U.K.:** Imperial College-Londres, Chelsea College-Londres, University College-Londres, Oxford, Cambridge, Aberdeen, Bristol,

- Edimburgo, Royal Radar E.-Malvern, Lancaster, Sheffield, Warwick-Coventry, Canterbury).
- iii. **EE.UU.-USA** (Ann Arbor-Michigan, Austin-Tx, Houston-Tx, Lubbock-Tx, San Angelo-Tx, MIT-Cambridge, Harvard-Cambridge, Boston, Bozeman-Montana, CNLS-Los Alamos, UF-Gainesville, U. Miami-Coral Gables, FAU-Boca Raton, Stanford, UC-San Diego, UC-Santa Barbara, UC-Berkeley, UC-Santa Cruz, UCLA, CALTECH-Pasadena, Salt Lake City-Utah, Iowa Univ.-Iowa City, Hydraulic Inst.-Iowa City, Boulder-Co., Laramie-Wyoming, Tucson-Arizona, Haverford College-Philadelphia, Bryn Mawr College-Philadelphia, Temple Univ.-Philadelphia, UP-Philadelphia, Rochester, Boston, Yeshiva Univ.-NY, Courant Inst.-NY, Columbia-NY, City College-NY, Rockefeller-NY, IBM-Yorktown Heights, Bell Labs-Murray Hill, Yale-New Haven, Case Western-Cleveland, Univ. Chicago, IIT- Chicago, Northwestern-Evanston, NBS-Washington DC, NRL-Washington DC, National Academy of Sciences-Washington DC, NPS-Monterey, UNM-Albuquerque, Sandia Lab.-Albuquerque, Rochester, Miami-Coral Gables, Rutgers U., NRL-Orlando, NORDA-Louisiana, College Park-Maryland, Washington U.-St. Louis-Missouri, etc).
  - iv. **Mexico** (UNAM-Mexico DF, Jalapa); **Colombia** (CIF-Bogota); **Argentina** (Buenos Aires, La Plata); **Chile** (Santiago, Valparaiso).
  - v. **Canada** (Montreal, Ottawa).
  - vi. **Far East (Republica Popular China:** Academia Sinica-Inst. Theoret.-Phys. Beijing, Inst. Atmospheric Phys.-Beijing & Normal Univ.-Beijing, North W. U.-Xian y HUST-Wuhan, Xiamen, Normal Univ.-Shanghai, Fudan Univ.-Shanghai; **Corea:** Seoul, KAIST-Taejon; **Japan:** Tokyo Univ., Science Univ. Tokyo, Kyoto Univ., Chubu Univ., Kyushu Univ.-Fukuoka; **Hong-Kong:** Science & Technology Univ., Polytechnic Univ.).
  - vii. **Israel** (Tel Aviv, Technion-Haifa).
  - viii. former **USSR-Russia** (Inst. Landau-Moscow, Inst. Lebedev-Moscow, Inst. Problems Mechanics-Moscow, Lomonosov Univ.-Moscow, Physico Techn. Inst.-Moscow, Inst. Steklov-Leningrado/St. Petersburg, Kiev, Inst. Biophysics, Pushchino).
  - ix. **Africa (Marruecos:** Rabat, Casablanca, Marrakech).
4. Lay audience: "La Barraca de la Ciencia: A Decade of Science for the People in Spain" and beyond. Almost a thousand public lectures in Spain (touring the country with a car with trolley bringing lab equipment) and a few places abroad/Como educador/divulgador de la Ciencia he dado casi un millar de conferencias tanto en España como en algunos centros del extranjero, muchas de ellas ilustradas con experimentos y multimedia ("La Barraca de la Ciencia").
  5. Listado (con biografía) en los libros de referencia: WHO IS WHO IN THE WORLD (Marquis, USA), WHO IS WHO IN SCIENCE (Longmans, UK), etc.

## **PUBLICATIONS/PUBLICACIONES**

### **FIRST LISTING: SCIENTIFIC PUBLICATIONS IN PERIODICALS/PUBLICACIONES EN REVISTAS CIENTIFICAS**

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**SECOND LISTING** (*numbering in italics*): **BOOK CHAPTERS, LECTURE NOTES, CONFERENCE PROCEEDINGS, etc/CAPITULOS DE LIBROS, NOTAS DE CURSOS O ESCUELAS INTERNACIONALES, CONTRIBUCIONES A ACTAS DE REUNIONES CIENTIFICAS O CONGRESOS CIENTIFICOS, etc.**

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**THIRD LISTING: PUBLICATIONS FOR LAY AUDIENCE/**

**DIVULGACION CIENTIFICA** (papers, book reviews, etc/ artículos, recensiones de libros y monografias)

(NB.: Generally published under the full name Manuel Garcia Velarde)

For further information (1993 onwards) see:

<http://www.ucm.es/info/fluidos>

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285. 2007 "Polymer monolayers with a small viscoelastic linear regime: Equilibrium and rheology of poly (octadecyl acrylate) and poly (vinyl stearate)", *J. Chem. Phys.* **126**, 124904 -1-10 (with H. Hilles, A. Maestro, F. Monroy, F. Ortega & R. G. Rubio).
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291. 2008 "Thermal solitons and solectrons in 1D anharmonic lattices up to physiological temperatures", *Int. J. Bifurcation Chaos* **18**, 3815-3823 (with W. Ebeling & A. P. Chetverikov).
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294. 2008 "Convective instability of an Ohmic liquid layer in an unsteady thermal field", *Phys. Fluids* **20**, 044101-1-9 (with B. L. Smorodin).
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128. 2008 "Sistemas dinámicos y robots", *Verano Complutense*, IV, n. 136, 8 (with P. Arena).  
129. 2008 "Quimiotaxis, infotaxis y memotaxis: estrategias de exploración y supervivencia", *Rev. Esp. Física* **22** (3) 38-42 (with N. P. Castellanos, D. Lombardo, V. A. Makarov & P. Arena).  
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## 2009

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301. 2009 "Bound states of electrons with soliton-like excitations in thermal systems – adiabatic approximations", *Condensed Matter Phys.* **12**, 633-645 (with W. Ebeling & A. P. Chetverikov).  
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325. 2012 “Memotaxis – A hidden orientation strategy found in the fruit fly *Drosophila melanogaster*” (with C. Berg, J. A. Villacorta, B. Zäpf, V. A. Makarov, L. Patané, S. De Fiore, I. Aleo, P. Arena & R. Strauss) (to be submitted).
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## BOOKS/LIBROS

### A. AUTHOR/AUTOR

#### RESEARCH MONOGRAPHS/LIBROS DE INVESTIGACION

1. 2001. **Nonlinear Dynamics of Surface Tension-Driven Instabilities**, Wiley-VCH, N. Y., 512 pp., ISBN 3-527-40291-8 (with P. Colinet & J. Cl. Legros).
2. 2002. **Interfacial Phenomena and Convection**, Chapman & Hall/CRC, Pitman Series, Boca Raton & London, 365 pp., ISBN 1-5848-8256-5 (with A. A. Nepomnyashchy & P. Colinet).
3. 2002. **Synergetic Phenomena in Active Lattices (Patterns, Waves, Solitons, Chaos)**, Springer-Verlag, Synergetic Series, Berlin, 357 pp., ISBN 3-540-42715-5 (with V. I. Nekorkin).
4. 2003. **Liquid Interfacial Systems. Oscillations and Instability**, M. Dekker, N.Y., Surfactant Science Series, 367 pp., ISBN 0-8247-4295-8 (with R. V. Birikh, V. A. Briskman & J. Cl. Legros).
5. 2007. **Wetting and Spreading Dynamics**, Taylor & Francis/CRC (formerly M. Dekker), N.Y., Surfactant Science Series, 544 pp., ISBN 1-5744-4540-5 (with V. M. Starov & C. Radke).
6. 2011. **Falling Liquid Films**, Springer-Verlag, London, 440 pp. ISBN 978-1-84882-366-2 (with S. Kalliadasis, C. Ruyer-Quil & B. Scheid).

#### OTHER BOOKS/OTROS LIBROS

1. 1982. **La Física en España**, CAICYT-MEC, Madrid, 151 pp. (with J. L. de Segovia, E. Bernabeu, A. Fernandez-Rañada, F. Flores & F. Verdaguer).
2. 1977. **Cuestiones de Termodinámica y de Física Estadística**, Monografías Real Academia de Ciencias, Madrid, 73 pp. (with C. Fernandez-Pineda).
3. 1989. **Física para todos (Guía de Lectura, Notas y Cuestionarios)** -serie de L. D. Landau & A. I. Kitaigorodsky- Rubiños, Madrid (vol. 1-300 pp. & vol. 2-289 pp.) (with R. Fernandez & J. L. Hernandez).
4. 1991. **Física y Química - Energía 2, BUP 2**, SM, Madrid (vol. 1-351 pp. & vol. 2-174 pp.) (with A. Arriola, J. del Barrio, A. Cañas, R. Fernandez, J. Hernandez, E. Lowy & N. Romo).
5. 1991. **Física y Química - Energía 3, BUP 3**, SM, Madrid (vol. 1-351 pp. & vol. 2-213 pp.) (with J. del Barrio, R. Calderon, D. Crespo, R. Fernandez, J. Hernandez, M. Laiseca, E. Lowy, N. Romo & L. M. Tel).
6. 1992. **Física: Algunas preguntas, notas y respuestas**, UNED (Colección Aula Abierta), Madrid, 493 pp. (with R. Fernandez & J. L. Hernandez).

### B. EDITOR/DIRECTOR/COMPILADOR (and contributor with one or more chapters/y autor de uno o varios capítulos)

1. 1971. **Lectures in Statistical Physics**, Springer-Verlag, Berlin, 181 pp. (with W. C. Schieve & A. P. Grecos).
2. 1974. Translation into Spanish and Appendix/Traducción de **I. Prigogine: Introduccion a la Termodinamica de Procesos Irreversibles**, Selecciones Cientificas, Madrid, 169 pp. (with A. Soilan).
3. 1977. **Fronteras de la Ciencia (2 vols), vol. I: Bioquimica, Ecologia, Informatica**, 300 pp, **vol. II: Astrofisica, Materiales, Energetica**, 256 pp., Biblioteca Educacion Permanente, Serie Aula Abierta, U.N.E.D., Madrid
4. 1984. **Nonequilibrium Cooperative Phenomena in Physics and Related Fields**, Plenum Press, N.Y., 569 pp.
5. 1988. **Synergetics, Order and Chaos**, World Scientific, Singapore, 736 pp.
6. 1988. **Physicochemical Hydrodynamics. Interfacial Phenomena**, Plenum Press, N.Y., 1111 pp.
7. 1992. **Aceite de Oliva. Actas de las Jornadas (Tercer Año Mundial del Olivo) en el Ateneo de Madrid**, Mira, Zaragoza, 153 pp. (with J. Bautista de la Torre & A. Bonilla).
8. 1995. **Fluid Physics** (Proceedings of Summer Schools), World Scientific, Singapore, 597 pp., ISBN 981-02-1899-0 (with C. I. Christov).
9. 1995. **Thermodynamics and Statistical Physics. Teaching Modern Physics**, Proceedings 4th ICPE/IUPAP International Conference, World Scientific, Singapore, 315 pp., ISBN 981-02-2417-6 (with F. Cuadros).
10. 2002. **Interfacial Phenomena and the Marangoni Effect**, CISM-Springer Verlag, Udine & Wien, 283 pp., ISBN 3-211-83696-9 (with R. Kh. Zeytounian).
11. 2007. **Surface Forces: wetting phenomena, membrane separation and rheology**, *Advances in Colloid and Interface Science vol. 134-135 C (Topical issue in honor of the 60<sup>th</sup> birthday of Prof. V. M. Starov)*, Elsevier, 350 pp.
12. 2011. **Wetting and Spreading Science - quo vadis?** *European Physical Journal – Special Topics- Discussion and Debate vol. 197*, Springer-Verlag, 345 pp.

#### **LAB KITS/EQUIPOS DE LABORATORIO (JUNIOR UNIVERSITY YEARS AND SENIOR HIGH SCHOOL YEARS)**

1. 1987. **OPTICS WITH A LASER/Equipo de practicas de optica con laser (con guia de usuario)**, Didaciencia-Leybold, Madrid (with R. Fernandez). Ganador del concurso convocado por el MEC.
2. 1988. **OPTICS WITH A LASER/Equipo de prácticas de óptica con laser (con guía de usuario)**, (SECOND UPGRADED EDITION WITH GUIDE FOR TEACHER AND GUIDE FOR STUDENT/nueva versión ampliada sustancialmente con nuevos experimentos y sendas guías de profesor y de alumno), ENOSA, Madrid (with R. Fernández). Winner Spanish Ministry Open Competition/Ganador del concurso convocado por el MEC.

#### **INTERVIEWS & RELATED ACTIONS (RADIO & TELEVISION)**

1. 1977. Programa de Televisión (TVE-1) con experimento de la reacción de Belusoff-Zhabotinskii, con motivo del Premio Nobel de QUIMICA a Ilya PRIGOGINE, Noviembre.

2. 1980. RADIO NACIONAL ESPAÑA RNE-1: Asesor científico y autor de varios programas sobre temas científicos (cristales líquidos, etc.) en "La Enciclopedia de la Ignorancia".
3. 1982. TVE-1: Programa de Televisión con tres experimentos sobre transiciones de fase, con motivo del Premio Nobel de FÍSICA a Kenneth G. WILSON, Diciembre.
4. 1988. TELEVISION GALLEGA: En el programa "O veciño do Xoves", 05.05.1988, interview/entrevista -sazonada con experimentos de física y química- sobre divulgación científica, Mayo.
5. 1987-88. "Revista de Física", 1988-89, 1989-90, 1990-91, 1991-92 y 1992-93. "Cultura Científica", UNED-RNE-3 & RN-1 (a lo largo del curso académico, numerosos programas de media hora sobre diversos temas, con emisiones propias y entrevistas a colegas españoles y extranjeros, generalmente los martes o lunes hacia las diez y media de la noche).
6. 1991. TELEMADRID: 18 Introducciones a las correspondientes 18 películas de la OPEN UNIVERSITY, Abril y Mayo.
7. 1991. Radio ONDA CERO: Entrevistas sobre cuestiones científicas (media hora, varias a lo largo del año).
8. 1993. Four (broad band) video-recorded half-an-hour candid conversations with: J. B. Fenn (Nobel laureate, Yale), Y.-T. Lee (Nobel laureate, UC Berkeley), N. F. Ramsey (Nobel laureate, Harvard), & A. Zewail (Nobel laureate, Caltech).
9. 1993. Cooperación UNED-TV2 (Television Educativa): Complemento semanal a diversos programas durante varios meses.
10. 1993. CANAL PLUS TV: interview/entrevista caos y fractales (PARQUE JURASICO), Septiembre.
11. 1994. Radio France-FRANCE CULTURE: La Science et les Hommes: "Les Vagues", entretien (aprox. 1 heure), 16 Noviembre.
12. 1994. RADIO NACIONAL ESPAÑA RNE-1, Programa "Fiebre del Sábado": "ELGRA Madrid 1994 e Investigación espacial en Microgravedad", interview/entrevista, 10 Diciembre.
13. 1995. TELEMADRID, Programa La Cuestión (con E. Punset): "Una Mirada al Espacio", Tertulia-discusión grupo de expertos, 6 Enero.
14. 2000. Televisión Educativa Iberoamericana: Tertulias sobre Ciencia y Tecnología, Abril.
15. 2003. Realta industrial, "Il CISM si apre all'impresa", Interview/entrevista, 21-22, Febrero.
16. 2003. La clave, "La ciencia no esta integrada en la sociedad", Interview/entrevista, n. 99, 78-81, Marzo
17. 2004. La Nueva España, "Barrer para casa", Interview/entrevista, 10-11, 8 Febrero.
18. 2007. La Nueva España, "La Escuela debería ser menos libresca haciendo más cosas con las manos", Interview/entrevista, 7, 25 Abril.

#### **OTHER ACTIVITIES/OTRAS ACTIVIDADES**

1. Director/Presidente Comité Internacional de numerosísimos congresos y escuelas internacionales de los que, en ocasiones, se han publicado las

Actas/Proceedings y, asimismo, ha sido miembro del comité internacional organizador en más de dos centenares.

2. Ha dado casi un millar de conferencias divulgación científica (ilustradas en muchas ocasiones con experiencias de cátedra) a lo largo y ancho de la geografía española y parte del extranjero ("La barraca de la ciencia")/Nearly a thousand lectures delivered for the lay audience, school children, and high school youngsters, etc. all over Spain, and in the USA, Canada, Italy, Portugal and France.
3. 1977-presente. Ha organizado numerosos ciclos de conferencias de divulgación científica (más de una quincena). Particularmente a señalar FRONTERAS DE LA CIENCIA (desde 1977) y AULA ABIERTA-EXPERIENCIAS DE CATEDRA (desde 1993) en ACHNA, en el Centro Cultural de la Villa de Madrid y en el ATENEO de Madrid. En esta última institución, la Fundación de BBV dotó en 1993 y 1994 una cátedra para que desarrollara dicha actividad, recuperando así la tradición existente a finales del siglo pasado y primeras décadas del presente, desarrollada por S. RAMON Y CAJAL, B. CABRERA, J. ECHEGARAY y otros.
4. 1983. **Lección inaugural** del curso académico **1983-84** de la UNED: "Transiciones, sinérgesis y evolución: de la física a la sociología" (publicada por la UNED).
5. 1985 (Octubre). Padrino del Profesor Dr. **Ilya Prigogine**, Catedrático de las Universidades Libre de Bruselas y de Texas en Austin y Premio Nobel de Química de 1977, en su **Doctorado "Honoris Causa"** por la UNED (primero de esta universidad).
6. 1987 (Octubre). Padrino del Profesor Dr. **Hermann Haken**, Catedrático y Director del Instituto de Física Teórica y Sinérgica de la Universidad de Stuttgart, RFA, en su **Doctorado "Honoris Causa"** por la UNED.
7. 1993. **XX ANIVERSARIO UNED/XXth ANNIVERSARY UNED**, Organizador y presentador del Ciclo de Conferencias/LECTURE SERIES **FRONTERAS DE LA CIENCIA**: 1. **P. Day**, Director Royal Institution, Londres; 2. **N. F. Ramsey**, Catedrático Universidad Harvard y Premio Nobel de Física de 1989; 3. **H. Haken**, Catedrático y Director Instituto de Física Teórica y Sinérgica de la Universidad de Stuttgart, RFA; 4. **T. Marco**, Compositor; y 5. **P. G. de Gennes**, Catedrático Collège de France, Director Escuela de Física y Química de la Ciudad de Paris y Premio Nobel de Física de 1991, Mayo.
8. 2008. **Lección inaugural** del curso 2008-2009 de la Real Academia de Doctores de España "Perfección y simetría dan belleza, pero no hay inteligencia sin errores, y sin simetrías rotas no hubiese habido evolución" (publicada en los Anales de la RADE).