Curriculum vitae

HERNANDEZ-MACHADO, AURORA

Sex: Female

Full Professor of Condensed Matter Physics
(Catedratica de Universidad)
Department of Condensed Matter Physics
Faculty of Physics
University of Barcelona

Birthday: 3/24/1959
RESEARCH ID: H-7425-2012
ORCID: 0000-0002-0397-5255

University Education

- Ph.D. Thesis, University of Barcelona, 1985, Supervisor, M. San Miguel
- Postdoctoral Fellow, Philipps University, Marburg, Germany, 1985-1986
- Fulbright Postdoctoral Fellow, University of Pittsburgh, Pittburgh, U.S.A., 1987

Previous Positions

- Assistant Professor, Autonomous University of Barcelona, 1982-1983
- Assistant Professor, University of Barcelona, 1983-1987
- Associate Professor, University of Barcelona, 1987-2011
- Research Consultant, University of Pittsburgh, 1988, 1990
- Member of Institute of Theoretical Physics, U. California (Santa Barbara, U.S.A.), 1992
- Sabbatical Stay, University Paris 6 (France), 2001
- Sabbatical Stay, Universidad Nacional Autónoma Metropolitana (Mexico), 2008

Research Topics

- Topics: Condensed Matter Physics, Statistical Physics out from Equilibrium, Physics of Complex Systems, Biophysics, Microfluidics, Nanoscience
- Theoretical Expertise: Stochastic Processes, Interfacial Instabilities and Pattern Formation, Dynamic Wetting, Biological Membranes, Front Microrhelogy, Nanopatterning
- Experimental Expertise: Imbibition, Viscoelastic Fluid Flow, Blood Flow

Quality Factors of the Research Activity

113 publications in international peer-reviewed journals and chapters in ISBN books

Isi web of knowledge: hernandez-machad*,a* or hernandezmachado*,a*

Articles with Citation = 95
Sum of the Times Cited = 1667
Average Citations per Article = 17.55
h-index = 23
i100index=1

- Most cited publication = 114 citations

Google Scholar:

Number of Citations = 2382 Since 2013 = 772
h-index = 27

- i10index =60
- i100index=3
- Most cited publications: 162 citations, 143 citations,132 citations

1 Nature Materials (2011) with impact factor 30.0

1 Nature Communications (2015) with impact factor 11.47

8 Physical Review Letters with impact factor 7.7

Ph.D. thesis supervision= 9

Masters supervision=8

Sexenios: 5 in 2018

Aurora Hernandez-Machado (AHM) is full Professor of Condensed Matter Physics at the University of Barcelona. AHM is an international reknown expert in the general topic of Physics of Complex Systems, particularly in the fields of Biophysics, Microfluidics and Nanoscience. AHM has a long-lasting research career since 1981 working in very different subjects such as stochastic processes applied to optics and turbulence, interfaces and pattern formation of viscous fluid flow, liquid crystals and solids, phase-separation dynamics and domain growth with spatial dependence and fluctuations. The resulting publications have obtained a large number of citations until the present moment. More recently AHM has started a new line of research in the field of Biophysics of biomembranes. AHM and his student Dr. F. Campelo has developed the first dynamic phase-field mathematical model of membrane elasticity to appear in the literature. The Ph.D. thesis of Dr. Campelo has obtained a prestigious award for "outstanding doctoral thesis research in biological physics 2010" in an international competition granted by the American Physical Society (APS, U.S.A.) and the results have been published in Physical Review Letters. AHM has done also significant recent contributions to other areas of Complexity, particularly in the field of Microfluidics with important publications in prestigious journals like Nature Materials, Nature Communications and Physical Review Letters. AHM present interest is focused on the Biomechanics of biosystems like biofluids, red blood cells, bacteria and cancer. After a long period of theoretical mathematical modeling and collaboration with international and national experimental groups, AHM has complemented her theoretical research by establishing a Laboratory of Microfluidics and Nanoscience at the Faculty of Physics of the University of Barcelona. In this Laboratory AHM has opened a new line of research on Microrheology which has given rise to a new concept that she has dub Front Microrheology with an associated international patent by the European Patent Office of Munich. AHM has established along her career an extensive network of national and international contacts in Spain, U.S.A., Germany, France, Canada, United Kingdom, Hungary, Belgium, Portugal, Mexico, Finland, Israel and Brasil and she has been research leader of numerous research projects. AHM has organized international conferences and has been lecturer in international schools, conferences and seminars. She has supervised 9 Ph.D. thesis, 8 masters, 2 postdocs and has contributed to the career of excellent researchers as supervisor of Ph.D. thesis and postdocts that have obtained permanent positions in national and international universities and centers of research. AHM is currently member of the Editorial Board of an international Journal and referee of many prestigious journals and has been involved in evaluation of quality of research in numerous committees.

10 Selected Publications

Citations number are according to Isi Web of Knowledge and Google Citations Webpages

1. J. Garcıa-Ojalvo, A. Hernandez-Machado, J.M. Sancho, Effects of external noise on the Swift-Hohenberg equation, Physical Review Letters, 71, 1542-1545 (1993), Impact factor= 7.7, Citations= Isi:114, Google:162

2. J. Soriano, J.J. Ramasco, M.A. Rodriguez, A. Hernandez-Machado, J. Ortin, Anomalous roughening of Hele-Shaw flows with quenched disorder, Physical Review Letters, 89, 026102-1-4 (2002), Impact factor=7.7, Citations= Isi: 40, Google: 61

3. J. Soriano, A. Mercier, R. Planet, A. Hernandez-Machado, M. Rodriguez, J. Ortin, Anomalous roughening of viscous fluid fronts in spontaneous imbibitions, Physical Review Letters, 95, 104501-1-4 (2005), Impact factor= 7.489, Citations= Isi: 29, Google: 49

4. F. Campelo, A. Hernandez-Machado, Model for curvature-driven pearling instability in membranes, Physical Review Letters, 99, 088101 (2007). Impact factor= 6.944. Citations= Isi: 41, Google: 63

5. M. Castro, M. Bravo-Gutierrez, A. Hernandez-Machado, E. Corvera Poire, Dynamic characterization of permeabilities and flows in microchannels, Physical Review Letters, 101, 224501-1-4 (2008), Impact factor= 7.18

6. F. Campelo, A. Hernandez-Machado, Polymer-induced tubulation in lipid vesicles, Physical Review Letters, 100, 158103-1-4 (2008), Impact factor= 7.18, Citations= Isi: 26, Google: 40

7. R. Ledesma-Aguilar, R. Nistal, A. Hernandez-Machado, I. Pagonabarraga, Controlled drop emission by wetting properties in driven liquid filaments, Nature Materials, 10, 367-371 (2011). Impact factor= 30. Citations= Isi: 44, Google: 60

8. M. Queralt-Martin,, M. Pradas, R. Rodriguez-Trujillo, M. Arundell, E. Corvera Poire, A. Hernandez-Machado, Pinning and avalanches in hydrophobic microchannels, Physical Review Letters, 106, 194501 (2011), Impact factor= 7.3798, Citations= Isi: 16, Google: 24

9. R. Ledesma-Aguilar, A. Hernandez-Machado, I. Pagonabarraga, Theory of wetting-induced fluid entrainment by advancing contact lines on dry surfaces, Physical Review Letters, 110, 264502 (2013), Impact factor= 7.728, Citations= Isi:11, Google: 14

10. S.A. Setu, R.P.A. Dullens, A. Hernandez-Machado, I. Pagonabarraga, D.G.A.L. Aarts, R. Ledesma-Aguilar, Superconfinement tailors fluid flow at micro-scales, Nature Communications, 6, 7297 (2015). Impact factor= 11.47, Citations= Isi:11, Google: 13

Other Selected Publications:

Citations number are according to Isi Web of Knowledge and Google Citations Webpages

1. R. Folch, J. Casademunt, A. Hernandez-Machado, L. Ramirez-Piscina, Phase-field model for Hele-Shaw flows with arbitrary contrast I: theoretical approach, Phys. Rev., E 60, 1724-1733 (1999) Citations= Isi: 99, Google: 143

2. C. Van den Broeck, J.M.R. Parrondo, J. Armero, A. Hernandez-Machado, Mean field model for spatially extended systems in the presence of multiplicative noise, Phys. Rev., E 49, 2639-2643 (1994) Citations= Isi: 90, Google: 132

3. A. Hernandez -Machado, M. San Miguel, .M. Sancho, Relaxation time of processes driven by multiplicative noise, Phys. Rev. A 29, 3388-3396 (1984) Citations= Isi:80, Google: 96

4. R. Travasso, E. Corvera Poire, M. Castro, J. C. Rodriguez-Manzaneque, A. Hernandez-Machado, Tumor angiogenesis and vascular patterning: A mathematical model, Plos-one, 6, 19989 (2011) Citations= Isi:52, Google: 91

5. R. Folch, J. Casademunt, A. Hernandez -Machado, L. Ramirez-Piscina, Phase-field model for Hele-Shaw flows with arbitrary contrast II: numerical study, Phys. Rev. E 60, 1734-1740 (1999) Citations= Isi:51, Google:70

6. F. Campelo, A. Hernandez –Machado, Dynamic model and stationary shapes of fluid vesicles, European Phys. J. E 20, 37-45 (2006) Citations= Isi: 49, Google: 69

7. A. Hernandez-Machado, J. Soriano, A. M. Lacasta, M. A.Rodriguez, L. Ramirez- Piscina, J.Ortin, Interface roughening in Hele-Shaw flows with quenched disorder: experimental and theoretical results, Euro. Phys. Lett. 55, 194-200 (2001) Citations= Isi: 41, Google: 65

8. C. Yeung, T. Rogers, A. Hernandez-Machado, D. Jasnow; Phase separation dynamics in driven diffusive systems, J. Stat. Phys. 66, 1071-1088 (1992) Citations=Isi: 48, Google: 62

9. L. Ramirez-Piscina, J.M. Sancho, A. Hernandez-Machado, Numerical algorithm for Ginzburg-Landau equations with multiplicative noise: Application to domain growth, Phys. Rev. B 48, 125-131 (1993) Citations= Isi:53, Google: 61

10.Y. Couder, J. Maurer, R. Gonzalez-Cinca, A. Hernandez-Machado; Side- branch growth in two-dimensional dendrites.I: Experiments, Phys. Rev. E 71, 031602-1-12 (2005) Citations= Isi: 34, Google: 42

11. C. Trejo-Soto, E. Costa-Miracle, I. Rodriguez-Villareal, J. Cid, M. Castro, T. Alarco n, A. Hernandez-Machado, Front microrheology of the non-Newtonian behavior of blood: scaling theory of erythrocite aggregation by aging, Soft Matter, 13, 3042 (2017)

Selected Invited Chapters in Collective Volumes

1. A. Hernandez-Machado, The effect of noise on spatio-temporal patterns, Santa Fe Institute Studies in the Sciences of Complexity, 21, 521-527, Addisson Wesley (1994) (ISBN 0-201-40987-9) (invited)

2. T. Toth-Katona, T. Borzsonyi, A. Buka, R. Gonzalez-Cinca, L. Ramirez-Piscina, J. Casademunt, A. Hernandez-Machado, L. Kramer, Pattern forming instabilities of the nematic smectic-B interface, Physics Reports 337, 37-65 (2000) (invited)

3. R. Gonzalez-Cinca, L. Ramirez-Piscina, J. Casademunt, A. Hernandez-Machado, Sidebranching in solutal dendritic growth, Branching in Nature, 403-408, EDF Sciences, Springer-Verlag (2001) (ISBN 3-540-41888-1) (invited)

4. R. Folch, J. Casademunt, A. Hernandez-Machado, Branching transition in viscous fingering with a liquid crystal, Branching in Nature, 439-444, EDF Sciences, Springer-Verlag (2001) (ISBN 3-540-41888-1) (invited)

5. R. Gonzalez-Cinca, R. Folch, R. Benitez, L. Ramirez-Piscina, J. Casademunt, A. Hernandez-Machado, Phase-field models in interfacial pattern formation out of equilibrium, Advances in condensed matter and statistical mechanics, 203-236, Nova Science Publishers (2004) (ISBN 1-59033-899-5) (invited)

6. R. Gonzalez-Cinca, Yves Couder, J. Maurer, A. Hernandez-Machado, Deterministic versus noisy behavior in sidebranching, Noise in Complex Systems and stochastic Dynamics II, 5471, 280-288, The International Society for Optical Engineering (2004) (ISBN 0-8194-5393-5) (invited)

7. F. Campelo, A. Hernandez-Machado, Shape instabilities in vesicles: A phase-field model, European Physics J. Special Topics 143, 101-108 (2007) (invited)

8. F. Campelo, A. Hernandez-Machado, Dynamic instabilities in biological membranes, ASP Conference Series Proc. Appl. Math. Mech 7, 1121403(2007) (invited)

9. R.A. Barrio, C. Varea, T. Alarcon, C.B. Picallo, A. Hernandez-Machado, Dynamics of Z-ring formation in liposomes, International Symposium on Mathematical and Computational Biology, Ed. R.B. Mondaini. World Scientific Publ. Co. (2015) (ISBN 978-981-4667-93-7) (invited)

10. G.R. Lazaro, I. Pagonabarraga, A. Hernandez-Machado, Phase-field theories for mathematical modeling of biological membranes, Chemistry and Physics of Lipids, Special Issue on Membrane Mechanics: from molecular to cellular scale, 185, 4660 (2015) (invited)

11. C. Trejo-Soto, E. Costa-Miracle, I. Rodriguez-Villareal, J. Cid, M. Castro, T. Alarcon, A. Hernandez-Machado, Front microrheology of biological fluids, J. of Physics: Conf. Series, 1043, 012058 (2018) (invited)

Recent Projects

1. Biomechanics of biofluids and biomembranes at the microscale: Experiments and theory, Ministerio de Economia y Competitividad, Programa Estatal de Fomento de la Investigacion Cientifica y Tecnica de Excelencia, Proj. FIS2016-78883-C2-1-P (2017-19), 72.600 euros, COORDINATOR: A. Hernandez-Machado

2. Dynamics of interfacial systems at the micro and nanoscale: Biomembranes and microfluidics, Ministerio de Economia y Competitividad, Programa Estatal de Fomento de la Investigacion Cientifica y Tecnica de Excelencia, Proj. FIS2013-47949-C2-1-P (2014-17), 72.600 euros, COORDINATOR: A. Hernandez-Machado

3. Interfacial dynamics in fluids and biological systems, Ministerio de Ciencia e Innovacion. Programa Nacional de Fisica, Proj. FIS2009-12964-C05-02 (2009-13), 177.870 euros, RESEARCH LEADER: A. Hernandez-Machado

4. Interfacial dynamics in nanotechnology, fluidics and biophysics. Ministerio de Ciencia y Tecnologia, Programa Nacional de Fisica, FIS2006-12253-C06-05 (2006-09), 65.340 euros, RESEARCH LEADER: A. Hernandez-Machado

5. Interfacial dynamics in nanostructures and complex fluids, Ministerio de Ciencia y Tecnologia, Programa Nacional de Promocion General del Conocimiento, BFM2003-07749-C05-04 (2003-06), 102.740 euros. RESEARCH LEADER: A. Hernandez-Machado

6. Towards novel nano-scale technologies based on phoretic flow effects (NANOPHLOW), FET-Open research and innovation actions (H2020-FETOPEN-1-2016-2017), European Union (2018-2021), 573.750 euros. COORDINATOR: I. Pagonabarraga, PARTICIPANT: A. Hernandez-Machado

7. Flowing Matter (MP1305), European Union Framework Programme Horizon 2020, Cost Action (2014-2018), 100.000.000 euros, COORDINATOR: F. Toschi, PARTICIPANT: A. Hernandez-Machado

8. Barcelona Graduate School of Mathematics (BSGMATH), Excelencia Maria de Maeztu 2015 (2015-2018), 2.000.000 euros, COORDINATOR: Marc Noy, PARTICIPANT: A. Hernandez-Machado

9. Grup de Fisica No Lineal, Grup de Recerca de Catalunya, Generalitat de Catalunya, Proj. 2017 SGR 1061 (2017-2019), 20.00 euros, COORDINATOR: J. Ortin, PARTICIPANT: A. Hernandez-Machado

Patents

1. T. Alarcon, A.I. Rodriguez-Villarreal, J. Colomer, A. Hernandez-Machado, P.L. Miribel, Method, apparatus and micro-rheometer for measuring rheological properties of newtonian and non-newtonian fluids, European Patent Office number: 15382248.1 (2016), United States Patent Application Serial Number; 15/574.021 (2017)

Patent in operation by the start-up Company Rheo Diagnostics, S.L.

International Awards

1. F. Campelo, Award for outstanding doctoral thesis research in biological physics 2010, American Physical Society (U.S.A.) International Competition, SUPERVISOR: A. Hernandez-Machado

2. Premio de Científicos de Excelencia del Extranjero, Concurso Atracción de Capital Humano Avanzado del Extranjero, CONICYT (Chile) (2018)

3. Scientific Committee of "Catedras de Excelencia" Universidad Carlos III. Madrid, Spain (2017 and 2018)

4. Winner application of the Collider Programme of the Mobile World Foundation for highly innovative technology startups (2017)

5. Selected Project of Accio Programm of EADA Business School (2017)

Organization of International Conferences

1. Scientific Coordinator of the “International focus workshop on phase-field simulations: Material science meets biology and medicine”, Max Planck Institute, Dresden, Germany (2008)

2. Scientific Coordinator of the Conference “Frontiers in interface physics: microfluidics, biomembranes and nanostructures”, Centro de Ciencias Pedro Pascual. Benasque, Spain (2010)

3. Scientific Coordinator of the Conference “Microfluidics and nanofluidics: From technology to science”, Centro de Ciencias Pedro Pascual. Benasque, Spain (2019)

Supervision of Ph.D. Students

1. Inestabilidades interfaciales y formación de estructuras en presencia de campos externos, Ph.D. STUDENT: J.L. de los Mozos, Becario de Formacion de Personal Investigador (FPU), Ph.D. DEFENSE: December 1993, SUPERVISOR: A. Hernandez-Machado

2. Dinámica de separación de fases en sistemas con difusión dependiente de la concentración, Ph. STUDENT: A.M. Lacasta, Profesora Ayudante, Universitat Politécnica de Catalunya, Ph.DEFENSE: October 1994, SUPERVISORS: J.M. Sancho and A. Hernandez-Machado

3. Dinámica de Hele-Shaw mediante modelos de phase-field, Ph.D. STUDENT: R. Folch, Becario de Formacion de Personal Investigador (FPU), Ph.D. DEFENSE: September 2000, SUPERVISORS: J. Casademunt and A. Hernandez-Machado

4. Rugosidad con desorden estático en celdas de Hele-Shaw, Ph.D. STUDENT: J. Soriano, Becario de Formación de Personal Investigador (FPI), Ph. DEFENSE: February 2003, SUPERVISORS: J. Ortin and A. Hernandez-Machado

5. Shapes in cells. Dynamic instabilities, morphology and curvature in biological membranes, Ph.D. STUDENT: F. Campelo, Becario de Formación de Personal Investigador (FPU), Ph.D. DEFENSE: November 2008, , AWARD: Premio extraordinario de doctorado Universidad de Barcelona, WARD: For oustanding doctoral thesis research in biological physics by APS (U.S.A.), SUPERVISOR: A. Hernandez-Machado

6. Interfaces in disordered media. Scaling growth, avalanche dynamics and microfluidic fronts, Ph.D. STUDENT: M. Pradas, Becario de Formación de Personal Investigador (FPI), Ph.D. DEFENSE: Septembre 2009, SUPERVISOR: A. Hernández-Machado

7. Hydrophobicity in capillary flows, Ph.D. STUDENT: R. Ledesma-Aguilar, Becario Predoctoral de la Fundacion Carolina (Mexico-Spain), Ph.D. DEFENSE: Septembre 2009, SUPERVISORS: A. Hernandez-Machado and I. Pagonabarraga

8. Red blood cells mechanics: from elasticity to blood rheology, Ph.D. STUDENT: G. R. Lazaro, Contrato Predoctoral del Plan Nacional 2009-2012 and Becari Predoctoral, Generalitat de Cataluna, Ph.D. DEFENSE: June 2014, SUPERVISORS: A. Hernandez-Machado and I. Pagonabarraga

9. Front microrheology of biological fluids, Ph.D. STUDENT: C. Trejo- Soto, Becaria Predoctoral del Gobierno de Chile, Ph.D. DEFENSE: July 2016, SUPERVISOR: A. Hernandez-Machado

10. Dynamics of erythrocyte flickering with a stochastic phase-field model, Ph.D. STUDENT: Andreu Fernandez-Gallen. Becario de Formacion de Personal Investigador (FPI), STARTING DATE: May, 2018, SUPERVISOR: A. Hernandez-Machado

11. Design and development of a microfluidic device for front microrhelogy for quality control and monitoring of blood during storage, Ph.D. STUDENT: Lourdes Mendez Mora. STARTING DATE: June, 2018, SUPERVISORS: A.Hernandez-Machado and T. Alarcon

12. Applications of front microrhelogy as a method for diagnosis and monitoring of haematological diseases, Ph.D. STUDENT: Samantha Lopez Mochales. STARTING DATE: September 2018, SUPERVISORS: A. Hernandez-Machado and T. Alarcon

Supervision of Postdocts

1.Cell division in bacteria, POSTDOC: C.B. Picallo, Postdoctoral position of the Plan Nacional Project FIS2009-12964-C05-02 (2011- 2012)

2. Experiments in rheology of red blood cells, POSTDOC: A.I. Rodriguez-Villarreal, Postdoctoral position of the Plan Nacional Project FIS2009-12964-C05-02 (2012-2013)

Major contributions to early careers of excellent researchers

1. F. Campelo, Investigador Ramon y Cajal (2018); Research Fellow, Institut Catala de Fotonics (ICFO); Juan de la Cierva Researcher, Center for Genomic Regulation (CRG, Barcelona) (2008-15)

2. M. Pradas, AssociateProfessor, Open University, Milton Keynes, London, United Kingdom; Postdoctoral Position, Imperial College, London (UK) (2009-2013)

3. R. Ledesma-Aguilar, Associate Professor, Northumbria University, New Castle, United Kingdom; Marie Curie Postdoctoral Position, Oxford University, (UK) (2009-2013)

4. J. Soriano, Profesor Agregado, University of Barcelona

5. R.Folch, Profesor Agregado, University Rovira I Virgili,Tarragona, Spain

6. A.M. Lacasta, Full Professor, Polytechnic University of Catalonia, Barcelona

7. J.L. de los Mozos, Postdoctoral Position Centro Nacional de Microelectronica de Barcelona, CSIC

8. C.B. Picallo, European Office of Patents, Munich; Postdoctoral Position, University of Lyon, France (2012)

9. A.I. Rodriguez-Villarreal, Postdoctoral Position, Centre de Recerca Matematica, Bellaterra

10. G. R. Lazaro, Data Scientist, Company of Aplicaciones en Informatica Avanzada; Postodoctoral Position, University of Brandais, Boston (U.S.A.) (2015-2017)

11. C. Trejo-Soto, Permanent Professor, Universidad Pontificia de Valparaiso

10-year track record of Selected Invited Conferences

1. Curvature-driven pearling instabilities in membranes, XXI Meeting on complex fluids science and technology, San Luis Potosi, Mexico (2008)

2. Vascularization and tumor growth, International focus workshop on phase-field simulations: Material science meets biology and medicine, Max Planck Institute, Dresden, Germany (2008)

3. Cell differentiation in flower development, Patterning, segregation and differentiation in complex networks , Mexico D.F., Mexico (2009)

4. Interface dynamics in microfluidics: Theory and experiments, Dynamical behaviour of complex systems, Cocoyoc, Mexico (2010)

5. Rheology of vesicles under flow in microchannels, 4th Conference on Patterning, segregation and differentiation in complex networks, Mexico D.F., Mexico (2014)

6. Phase-field models for the dynamic evolution of shapes in membranes, XII World Conference on Computational Mechanics, Seoul, Corea (2016)

7. Keynote lecture, Drop emission by dynamic wetting in thin films at the microscale, CECAM Workshop on Non-equilibrium dynamics of thin-films, solids, liquids and bioactive materials, Lausanne, Switzerland (2016)

8. Keynote lecture, Drop emission by dynamic wetting in thin films at the microscale: A Phase-Field Model Approach, 19h International Conference on Finite Elements in Flow Problems - FEF 2017, Rome, Italy (2017)

9. Keynote lecture, Front microrheology of the Non-Newtonian behavior of blood, XLVII Winter Meeting 2018, Puebla, Mexico, (2018)

10. Invited conference, Elastic and Dynamic Properties of Membrane Phase-field Models: the Viscosity of Blood and the Bending Rigidity of Red Blood Cells, 13th World Congress on Computational Mechanics and 2nd Pan American Congress on Computational Mechanics, New York City, U.S.A., 2018.

10-year track record of Selected Invited Seminars

1. Curvature-driven pearling and tubulation instabilities in membranes, Department of Physics. University of Oxford, Oxford (United Kindom) (2008)

2. Interface dynamics in microfluidics: Theory and experiments, Department of Physics. University of Coimbra, Coimbra (Portugal) (2010)

3. Elasticity of membranes and rheology of biofluids at the microscale, The Hong Kong University of Science and Technology, Hong Kong (China) (2014)

4. Biological and biofluids at the microscale, Van der Waals-Zeeman Institute, Institute of Physics, University of Amsterdam, Amsterdam (Holand) (2015)

5. Nonlinear rheology of blood at the microscale, The Open University, Milton Keynes, London (United Kingdom) (2016)

6. Roughness and wetting at microscales, Imperial College, London (United Kingdom) (2016)

7. Drop emission by dynamic wetting in thin films at the microscale, Massachusetts Institute of Technology. Boston (U.S.A.) (2018)

Committee membership and other merits

1. Invited member of Scientific Committee of Reunion Española de Fisica Estadistica (2002-2006)

2. Invited member of Grupo Especializado de Fisica Estadistica y No Lineal (RSEF) (2002-2012)

3. Member of the Comision Ramon y Cajal y Juan de la Cierva (ANEP) (2009)

4. Member of Comisión de Evaluación de Planes de Excelencia y Retos MINECO (2015)

5. Editorial Board member of Frontiers in Biophysics Journal

6. Referee of Projects: CODEST Projects of European Community; Comission NATO Scientific Exchange Program; Area de Fisica Matematicas de la Agencia Nacional de Evaluación y Prospectiva (ANEP); Ideas Program of European Research Council; AGAUR Generalitat de Catalunya; Agencia de Cualificaciones de Aragon; Agencia Argentina de Evaluacion de Proyectos; Foundation for Fundamental Research on Matter (FOM) Netherland;

7. Member of the Technical Committee of Flow 17 Conference, Paris, France (2017)

8. Referee of Journals: Phys. Rev. Lett., Phys. Rev.E, Phys. Rev. B, Physica D, Eur. Phys. J. B, J. Stat. Mech., Macromolecules, Physica A., Water Resources Research, Nonlinearity, Colloids and Surfaces A, Chemistry and Physics of Lipids, Eur. Phys. J. E., Frontiers in Materials, , Soft Matter, Phys. Rev. Fluids.