Dr. Jorge Ramírez
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Education

2020-Now Studying degree in **Chemistry**, *Universidad a Distancia* (UNED). Completed 76/240 ECTS.

1998 - 2002 **Ph. D.** in Materials Science, Dept. of Chemical Engineering, Escuela Técnica Superior de Ingenieros Industriales (**ETSII**), *Universidad Politécnica de Madrid* (**UPM**), Madrid, Spain. Thesis title: "Simulation of relaxation processes in polymers at different time and length scales", under the supervision of Prof. Manuel Laso.

22 February 2002: Thesis defense, with honours. Thesis awarded by UPM (Premio extraordinario de Doctorado 2001-2002)

1991 - 1997 **MEng** (Automation, Electronics Eng. And Industrial Computing), *ETSII, UPM*. (Score: 8.5/10, 1st student in specialty (over 120), 2nd overall (over 450)).

1994: University award for best academic performance 1991-1994.

1998: University award for overall performance during degree.

1994 - 1996 **MEng** (Ingénieur des Arts et Manufactures) *École Centrale Paris*, ERASMUS Program, double diploma. (Score: 14.2/20, second decile)

1989 - 1991 *International Baccalaureate* at IB Ramiro de Maeztu, Madrid (Score: 42/45).

1991: Academic Award of the Royal Society of Chemistry of Spain (1st among all high school students in Spain)

Fellowships and Invited Stays

01/2020 Visiting Professor, Department Chemie, Johannes Gutenberg-Universität Mainz (Prof. Sebastian Seiffert), Germany.

06/2019 Visiting Professor, Department of Chemistry, University of Cambridge (Dr. Rosana Collepardo-Guevara), United Kingdom.

01/2019 Visiting Professor, Graduate School of Organic Material Science (Prof. S. Sukumaran), Yamagata University, Japan.

07/2017-08/2017 Visiting Professor, Department of Chemical Engineering (Prof. B. Olsen), Massachusetts Institute of Technology, USA.

01/2016-08/2016	Visiting Professor MIT + Harvard (double appointment). Department of Chemical Engineering (Prof. B. Olsen), Massachusetts Institute of Technology, USA. School of Engineering and Applied Sciences (Prof. N. Joshi), University of Harvard.
08/2015	Invited Scholar, Department of Organic Chemistry (Prof. F. Muñoz), University of Concepción, Chile.
04/2014	Invited Scholar, Department of Applied Mathematics (Prof. V. Harmandaris), University of Crete, Greece.
04/2013	Invited Scholar, Materials Science Institute (Prof. A.V. Dobrynin), University of Connecticut, U.S.A.
07/2006	Dept. of Materials Science & Technology (Prof. D. Vlassopoulos), F.O.R.T.H., Crete, Greece, 4 weeks.
09/2001 - 12/2001	Chaire d'Analyse et Simulation Numériques (Prof. M. Picasso), Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland.
05/2000 - 08/2000	Institute of Polymers (Prof. H.C. Öttinger), Eidgenössische Technische Hochschule Zürich (ETH-Zentrum), Zürich, Switzerland.
06/1999 - 09/1999	Laboratory of Statistical Thermodynamics and Macromolecules (Prof. D.N. Theodorou), University of Patras, Greece.
1998 - 2001	Ph.D. fellowship (Beca FPI) UPM and Spanish Ministry of Education and Science.

Funded Research Projects, Grants & Contracts with private companies

09/2023-09/2026	"Molecular simulations of phase transitions and dynamical properties in systems of technological interest". Spanish Ministry of Industry (MICINN, PID2022-136919NB-C32), Budget: 45.000,00 €. PI: Jorge Ramírez and María M. Conde (UPM).
01/2023-12/2024	**"**Red de Simulación Molecular" (RED2022-134276-T), PI: Eva González Noya (CSIC). Budget: 20.300€. Member of the Research Network.
01/2023-03/2024	"Computational modelling of polymer-containing formulations in Crop Science (Life Science Collaboration project ARTIDA)", consultancy agreement for Life Science Collaboration, Bayer AG (Germany).
09/2021-09/2025	"Development of a platform for the ultrasensitive and specific detection of infectious markers using plasmonic technology and modified hydrogels", Industrial Doctorate grant to student Anne Beatriz Parra Herring, to do a PhD (DIN2020-011175) in collaboration with UPM (Jorge Ramírez) and the company Mecwins S.L. (Oscar Ahumada). Budget: 51.888,88€. PI: Oscar Ahumada and Jorge Ramírez.
04/2021-05/2021	"Dictamen pericial", Fundación para el Fomento de la Innovación Industrial. Project with company Telefónica de España. 4000€. PI: Jorge Ramírez.

01/2021 – 12/2021 Grant for Research Groups (evaluation of the research activity during 2019), Universidad Politécnica de Madrid. Budget: 3426€. PI: Jorge Ramírez.

09/2020-12/2023 "Modelization of nucleation in systems with practical interest". Spanish Ministry of Industry (MICINN, PID2019-105898GA-C22). Budget 52030€. Member of Research Team. PI: María Martín Conde (UPM).

01/2020-12/2021 "Modelization of phase transitions and nucleation in clathrates", Project funded by the Regional government of Madrid (APOYO-JOVENES-01HQ1S-129-B5E4MM). Budget: 50800 €. Member of Research Team. PI: María Martín Conde (UPM).

05/2020-04/2021 "Computer simulation of clathrates of natural gas and other molecules of industrial interest", Project funded by the School of Industrial Engineering (ETSII, ETSII-UPM20-PU01). Budget: 3000 €. Member of Research Team. PI: María Martín Conde (UPM).

01/2020 – 12/2020 Grant for Research Groups (evaluation of the research activity during 2018), Universidad Politécnica de Madrid. Budget: 3673€. PI: Jorge Ramírez.

09/2019 – 08/2022 "Developing and Implementing Sustainability-Based Solutions for Bio-Based Plastic Production and Use to Preserve Land and Sea Environmental Quality in Europe (BIO-PLASTICS EUROPE)", H2020 Project. Budget 8M€. Member of Research Team. PI: Walter Leal (Hamburg University of Applied Sciences). PI UPM Team: Joaquín Martínez Urreaga.

03/2019-03/2020 "Supervisión de los contenidos técnicos de un curso para uso exclusivamente interno para empleados", Fundación para el Fomento de la Innovación Industrial. Proyecto con la empresa MAXAMCORP Holding. 8772.50€. PI: Jorge Ramírez.

03/2019 – 12/2019 "High Frequency Rheological and Dielectric Response of Polymeric Liquids", awarded by Institute for Chemical Research, Kyoto University. In collaboration with Yamagata University, ICR Kyoto University, Nagoya University (Japan) and University of Glasgow (UK). Budget: 1080000 JPY (8700€). PI: Sathish Sukumaran (Yamagata University).

01/2019 – 12/2019 Grant for Research Groups (evaluation of the research activity during 2017), Universidad Politécnica de Madrid. Budget: 3774€. PI: Jorge Ramírez.

10/2018 "Selective capture of gas molecules in clathrates by means of simulation". Funded by Repsol. Budget: 4550€. Co-PI: Jorge Ramirez and María M. Conde.

07/2018 – 06/2020 Grant for recruiting a Research Assistant (Regional Government of Madrid). Budget: 45000€. PI: Jorge Ramirez.

06/2018 NVIDIA GPU Grant, donation of 1 Titan Xp to support the research of my group (approx. value = 2000$). PI: Jorge Ramirez.

12/2016 – 12/2019 "Simulations of suspensions of self-propelled particles to investigate their phase behaviour and tailor novel functional materials". Research Project FIS2016-78847-P, funded by the Spanish Ministry of Science and Innovation. Budget: 60500€. PI: Chantal Valeriani (UCM).

01/2016 – 12/2018	**"**MIRACLE: MIneral RAw materials replacement with nanoComposites by renewabLe Resources Exploitation". Network H2020 funded by the EU. PI: Joaquín Martínez-Urreaga.
01/2017 – 12/2017	Grant for Research Groups (evaluation of the research activity during 2016), Universidad Politécnica de Madrid. Budget: 7008.41€. PI: Jorge Ramírez.
10/2016 – 09/2017	"New theoretical framework to explain the rheology and diffusion properties of associating polymers". Funded by Repsol. Budget: 5600€. PI: Jorge Ramirez.
10/2014 – 09/2015	"Organic photovoltaic cells based on self-assembled molecules". Funded by Repsol. Budget: 6545€. Co-PI: Victoria Alcázar and Jorge Ramirez.
01/2011 – 12/2013	"*Hierarchical Modelling of Biosensors (HiMobs)*". Non-guided Fundamental Research Project MAT2010-15482, funded by the Spanish Ministry of Science and Innovation. Budget: 25000€. Principal Investigator: Jorge Ramírez.
10/2012 – 09/2013	"Polycarbazoles for photovoltaic applications". Funded by Repsol. Budget: 6550€. Co-PI: Jorge Ramírez and Victoria Alcázar.
10/2011 – 09/2012	"Design of photovoltaic cells based on carbazole moieties". Funded by Repsol. Budget: 6550€. Principal Investigator: Jorge Ramírez.
01/2011 – 12/2011	"*Modelling and development of new polycarbonate nanocomposites*". Program for the creation and consolidation of UPM R+D UPM groups, CCG10-UPM/MAT-5569, co-funded by the Government of Madrid (CAM) and UPM. Budget: 7293,60€. Principal investigator: Jorge Ramírez.
09/2010 – 12/2011	Development of the control software for a biosensing platform. Company: Mecwins S.L. Job number T.2010/2384 (Fundación para el Fomento de la Innovación Industrial, F^2I^2). Budget: 8071,20€. PI: Jorge Ramírez.
04/2009 – 11/2009	**"***Development of a prototype nanobiosensor for the detection of one-base mutations in DNA oligomers***"**. Torres Quevedo Project PTQ-09-01-00586, funded by the Spanish Ministry of Science and Innovation, working as R+D Engineer in Mecwins S.L., in collabnoration with the Bionanomechanics group, at the Institute of Microelectronics (CSIC). Budget: 22.554 €. PI: Javier Tamayo (CSIC).
2005 - 2009	"*Micro-scale model polymer processing 2: Molecular structure to product performance across the length scales (μPP^2)*". Project funded by the EPSRC (Engineering and Physical Sciences Research Council, UK, contract number GR/T11807/01). Collaborators: companies BASF, BP, Dow, DSM, Dupont, ICI and Lucite International, and Universities of Leeds, Bradford, Durham, Cambridge, Sheffield, Oxford and TUE Eindhoven. Full-time post-doctoral collaborator. Budget: 3000000 €. PI: Tom McLeish (U. Leeds)
2005 - 2007	Network of Excelence "*SoftComp (Soft Matter Composites)*". Funded by the EU (FP 6, contract number NMP3-CT-2004-502235). Collaborators: more than 30 institutions among the best european Universities and Research Centres. Part-time post-doctoral collaborator in Area 4 (Polymer based complex systems). Budget: 6000000€. PI: Dieter Richter (Forschungszentrum Jülich), Peter Olmsted (U. Leeds).

2002 - 2005 "*Polymer Molecular Modeling at Integrated Time/Length Scales* (PMILS)". Project funded by the EU (FP 5, contract number GROWTH G5RD-CT-2002-00720). Collaborators: companies Borealis, Rhodia and IP-Sol, and Universities and Research Centres ICE-FORTH, CPERI, DTU, Imperial College, UPM and University of Namur. Full-time post-doctoral investigator. Budget: 1597624€. Principal investigator: Manuel Laso (UPM).

2002 - 2003 "*Design of New Environmentally Friendly Pressure Sensitive Adhesives* (DEFSAM)". Project funded by the EU (FP 5, contract number GROWTH GRD1-1999-10798). Collaborators: companies Exxon and Beiersdorf BDF, and Universities and Research Centres ESPCI, UPM and Patras University/ICE-FORTH. Full-time post-doctoral investigator. Budget: 1138820 €. Principal investigator: Constantino Creton (EPSCI), Manuel Laso (UPM).

2000 - 2002 "*Relación Cuantitativa entre Estructura y Propiedades Ópticas Lineales y No-Lineales de Policondensados*". Project funded by CICYT (contract number MAT1999-0972). Part-time pre-doctoral investigator. Budget: 28000€. Principal investigator: Manuel Laso.

1999 – 2004 "*Challenges in Molecular Simulations: bridging the length and time-scale gap* (SIMU)". European network funded by the European Science Foundation (ESF), with more than 140 research groups.

Access to Supercomputing resources

11/2022 – 02/2023 "Nucleation of water bubbles and drops in cavitation and condensation.", 2822400h, Mare Nostrum, Barcelona Supercomputing Center. Project number FI-2022-3-0029. PI: Eduardo Sanz (UCM).

07/2020 – 10/2020 "Antifreeze effect of ice-binding proteins", 3960000h, Mare Nostrum, Barcelona Supercomputing Center. Project number QSB-2020-2-0010. PI: Eduardo Sanz (UCM).

01/2020 – 12/2020 "Dynamics of Linear Associative Polymer Gels", 1171718 h, Comet, San Diego Supercomputing Center. Project number DMR160175-Renew. Value of awarded resources: $18,303.77. PI: Bradley D. Olsen (MIT).

03/2020 – 06/2020 "Antifreeze effect of ice-binding proteins", 3000000h, Mare Nostrum, Barcelona Supercomputing Center. Project number QSB-2020-1-0010. PI: Eduardo Sanz (UCM).

07/2019 – 10/2019 **"**Viscoelastic properties of biofilms: An In-Silico study to understand bacteria collective behavior", 5000000h, Mare Nostrum, Barcelona Supercomputing Center. PI: Chantal Valeriani (UCM).

01/2019 – Now "Entangled polymer dynamics", 100000h, Magerit, Cesvima, UPM. Project number r578. PI: Jorge Ramírez.

01/2018 – Now "Estudio teórico de la auto-reparación en polímeros asociativos", 200000h, Magerit, Cesvima, UPM. Project number q894. PI: Jorge Ramírez.

03/2017 – Now	"Física estadística de los cambios de fase en disolventes moleculares", 200000h Magerit, Cesvima, UPM. Project number p128. PI: Jorge Ramírez.
01/2017 – 12/2017	"Dynamics of Rod-Coil-Rod Triblock Copolymers", 862508 CPUh Comet, SDSC, U. San Diego, XSEDE, Project number TG-DMR160175. Value of awarded resources: $28,844.76. PI: Bradley D. Olsen (MIT).
03/2016 – 10/2016	"Mechanisms of Molecular Motion in Polymers with Nonuniform Stiffness", 120000 CPUh LUSITANIA, CENITS, RES + 90000 CPUh Magerit, Cesvima, UPM. PI: Jorge Ramírez.
07/2015 – 02/2017	"Compuestos orgánicos nanoestructurados para aplicaciones fotovoltaicas", 500000h, Magerit, Cesvima, UPM. Project number n068. PI: Jorge Ramírez.
07/2015 – 06/2015	"Simulación de agua subenfriada", 300000h, Magerit, Cesvima, UPM. Project number G52237. PI: José Antonio Cobos.
11/2010 – 02/2011	"Massively-Parallel Atomistic Molecular Dynamics Simulations for the Calculation of the Stress Relaxation in Polyethylene Melts", 100000 CPUh MareNostrum, BSC, RES. PI: Nikos Karayiannis.

Refereed Journal Articles and Book Chapters

1. A.R. Tejedor, J. Ramírez and M. Ripoll, "Breakdown of polymer self-similarity due to polar activity", submitted to *Physical Review Letters* (**2023**). doi: 10.1101/2022.12.14.520383
2. M.G. Smith, J. Radford, E. Febrianto, J. Ramírez, H. O'Mahony, A.B. Matheson, G.M. Gibson, D. Faccio and Manlio Tassieri, "Machine learning opens a doorway for microrheology with optical tweezers in living systems", *AIP Advances* 13, 075315 (**2023**). doi: 10.1063/5.0161014
3. S. Blazquez, I. Sanchez-Burgos, J. Ramirez, T. Higginbotham, M.M. Conde, R. Collepardo-Guevara, A.R. Tejedor, J.R. Espinosa, "Reordering of aromatic-rich segments in FUS inhibits ageing of FUS-RNA condensates", *Advanced Science* 2207742 (**2023**). doi: 10.1002/advs.202207742
4. J. Bascuñana, S. León, M. González-Miquel, E.J. González, and J. Ramírez, "Impact of Jupyter Notebook as a tool to enhance the learning process in chemical engineering modules," *Education for Chemical Engineers* **44**, 155–163 (**2023**). doi: 10.1016/j.ece.2023.06.001
5. A. Tejedor, R. Collepardo-Guevara , J. Ramirez and J.R. Espinosa, "Time-dependent material properties of ageing biomolecular condensates from different viscoelasticity measurements in molecular dynamics simulations", *The Journal of Physical Chemistry B* **127** (20), 4441-4459 (**2023**). doi: 10.1021/acs.jpcb.3c01292
6. A.R. Tejedor, R. Carracedo and J. Ramírez, "Molecular dynamics simulations of active entangled polymers reptating through a passive mesh", *Polymer* **268**, 125677 (**2023**). doi: 10.1016/j.polymer.2023.125677
7. A.R. Tejedor, J. Tejedor and J. Ramírez, "Detailed dynamics of discrete Gaussian semiflexible chains with arbitrary stiffness along the contour", *J. Chem. Phys.* **157**, 164904 (**2022**). doi: 10.1063/5.0112951

8. A. Tejedor , I. Sanchez-Burgos , M. Estevez-Espinosa , A. Garaizar , R. Collepardo-Guevara , J. Ramirez, J.R. Espinosa, "Ageing critically transforms the network connectivity and viscoelasticity of RNA-binding protein condensates but RNA can prevent it", *Nature Communications* **13**, 5717 (**2022**). doi: 10.1038/s41467-022-32874-0 (paper highlighted by the journal editors in the collection on Molecular Dynamics simulations and Computational methods in Life Science, https://www.nature.com/collections/gfiffaigef)

9. I. Sanchez-Burgos, A. Tejedor, C. Vega, M.M. Conde, E. Sanz, J. Ramirez, and J.R Espinosa, "Homogeneous ice nucleation rates for mW and TIP4P/ICE models through Lattice Mold calculations", *J. Chem. Phys.* 157, 094503 (**2022**). doi: 10.1063/5.0101383 (paper selected for the 2022 Editors' Choice, a collection that contains 80 articles selected by the editors as the most innovative and influential articles of 2022).

10. J. Martín-Roca, R. Martínez, F. Martínez-Pedrero, J. Ramírez and C. Valeriani, "Dynamical anomalies and structural features of Active Brownian Particles characterized by two repulsive length scales", *J. Chem. Phys.* **156**, 164502 (**2022**). doi: 10.1063/5.0087601

11. E. Chacon, F. Alarcon, J. Ramirez, P. Tarazona and C. Valeriani, "Intrinsic structure perspective for MIPS interfaces in two dimensional systems of Active Brownian Particles", *Soft Matter* **18**, 2646-2653 (**2022**). doi: 10.1039/D1SM01493E

12. C. Pulido Lamas, J.R. Espinosa, M.M. Conde, J. Ramírez, P. Montero de Hijes, E. Noya, C. Vega and E. Sanz, "Homogeneous nucleation of NaCl in supersaturated solutions", *Phys. Chem. Chem. Phys.* **23**, 26843-26852 (**2021**). doi: 10.1039/D1CP02093E

13. A. Rao, J. Ramirez and B.D. Olsen, "Role of Chain Walking and Hopping in Anomalous Self-Diffusion of Associative Linear Polymers Studied by Brownian Dynamics Simulation", *Macromolecules* **54**, 11212-11227 (**2021**). doi: 10.1021/acs.macromol.1c01508

14. A. R. Tejedor, A. Garaizar, J. Ramírez and J.R. Espinosa, "Dual RNA modulation of protein mobility and stability within phase-separated condensates", *Biophysical Journal* **120**(23) 5169-5186 (**2021**). doi: 10.1016/j.bpj.2021.11.003

15. J. Martin-Roca, R. Martinez, L.C. Alexander, A.L. Diez, D.G.A.L. Aarts, F. Alarcon, J. Ramírez and C. Valeriani, "Characterization of MIPS in a suspension of repulsive Active Brownian Particles through dynamical features", *J. Chem. Phys.* **154**, 164901 (**2021**). doi: 10.1063/5.0040141

16. I. M. Rasid, J. Ramírez, B.D. Olsen, N. Holten-Andersen, "Understanding the molecular origin of shear thinning in associative polymers through quantification of bond dissociation under shear", *Phys. Rev. Mat.* **4** (5), 055602 (**2020**). doi:10.1103/PhysRevMaterials.4.055602

17. V. Boudara, D. J. Read and J. Ramirez, "RepTate rheology software: toolkit for the analysis of theories and experiments", *J. Rheo.* **64**, 709 (**2020**). doi:10.1122/8.0000002. Featured article (highlighted by the editors of the Journal of Rheology, 19 papers selected out of 110 published during 2020).

18. A.R. Tejedor and J. Ramirez, "Dynamics of entangled polymers subjected to reptation and drift", *Soft Matter* **16**, 3154-3168 (**2020**). doi:doi:10.1039/d0sm00056f

19. D. Rogel Rodriguez, F. Alarcon, R. Martinez, J. Ramirez, and C. Valeriani., " Phase behaviour and dynamical features of a two-dimensional binary mixture of active/passive spherical particles ", *Soft Matter* **16**, 1162-1169 (**2020**). doi:10.1039/c9sm01803d

20. A.R. Tejedor and J. Ramirez, "Reptation of active entangled polymers", *Macromolecules* **52**, 8788-8792 (**2019**). doi:10.1021/acs.macromol.9b01994

21. J.R. Espinosa, A.L. Diez, C. Vega, C. Valeriani, J. Ramirez and E. Sanz, "Ice Ih vs. ice III along the homogeneous nucleation line", *Phys. Chem. Chem. Phys.* **21**, 5655-5660 (**2019**). doi:10.1039/c8cp07432a

22. M. Tassieri, J. Ramirez, N.Ch. Karayiannis, S.K. Sukumaran and Y. Masubuchi, "i-Rheo GT: Transforming the time-dependent shear relaxation modulus of materials into their frequency-dependent complex shear modulus without artefacts", *Macromolecules* **51**(14), 5055-5068 (**2018**). doi:10.1021/acs.macromol.8b00447

23. A. Zaragoza, J.R. Espinosa, R. Ramos, J.A. Cobos, J.L. Aragonés, C. Vega, E. Sanz, J. Ramirez and C. Valeriani, "Phase boundaries, nucleation rates and speed of crystal growth of the water-to-ice transition under an electric field: a simulation study", *J. Phys. Condens. Matter* **30** 174002 (**2018**). doi:10.1088/1361-648x/aab464

24. J. Ramirez, T.J. Dursch and B.D. Olsen, "A molecular explanation for anomalous diffusion in supramolecular polymer networks", *Macromolecules* **51**(7), 2517–2525 (**2018**). doi:10.1021/acs.macromol.7b02465

25. G.D. Soria, J.R. Espinosa, J. Ramirez, C. Valeriani, C. Vega and E. Sanz, "A simulation study of homogeneous ice nucleation in supercooled salty water", *J. Chem. Phys.* **148**, 222811 (**2018**). doi:10.1063/1.5008889

26. H. Watanabe, Y. Matsumiya, Y. Kwon, J. Ramirez, D. Read, E. van Ruymbeke, M. Rubinstein, Z.W. Wang, "Discussion of paper by H. Watanabe, Y. Matsumiya and Y. Kwon, entitled 'Dynamics of rouse chains undergoing head-to-head association and dissociation: Difference between dielectric and viscoelastic relaxation'", *J. Rheo.* **61**(6), 1171-1171 (**2017**). doi:10.1122/1.5008869

27. G.W. Park, J. Mattsson, M. Rubinstein, E. van Ruymbeke, J. Ramirez, "Discussion of paper by M. E. Shivokhin, T. Narita, L. Talini, A. Habicht, S. Seiffert, T. Indei, and J. D. Schieber, entitled 'Interplay of entanglement and association effects on the dynamics of semidilute solutions of multisticker polymer chains'", *J. Rheo.* **61**(6), 1243-1244 (**2017**). doi:10.1122/1.5008876

28. A. Shabbir, Q. Huang, G. Baeza, D. Vlassopoulos, Q. Chen, R.H. Colby, N.J. Alvarez, O. Hassager, Z.W. Wang, C. Creton, E. van Ruymbeke, S. Coppola, J. Ramirez, "Discussion of paper by A. Shabbir, Q. Huang, G. Baeza, D. Vlassopoulos, Q. Chen, R. H. Colby, N. J. Alvarez and O. Hassager, entitled 'Nonlinear shear and uniaxial extensional rheology of polyether-ester-sulfonate copolymer ionomer melts'", *J. Rheo.* **61**(6), 1291-1291 (**2017**). doi:10.1122/1.5008879

29. M.K. Sing, J. Ramirez and B.D. Olsen, "Mechanical response of transient telechelic networks with many-part stickers", *J. Chem. Phys.* **147**, 194902 (**2017**). doi:10.1063/1.4993649

30. J.R. Espinosa, G.D. Soria, J. Ramirez, C.Valeriani, C.Vega, and E. Sanz, "Role of Salt, Pressure, and Water Activity on Homogeneous Ice Nucleation", *J. Phys. Chem. Lett.* **8** (18), 4486–4491 (**2017**). doi:10.1021/acs.jpclett.7b01551

31. O. Ahumada, M.M. Pérez-Madrigal, J. Ramirez, D. Curcó, C. Esteves, A. Salvador-Matar, G. Luongo, E. Armelin, J. Puiggalí and C. Alemán, "Sensitive thermal transitions of nanoscale polymer samples using the bimetallic effect: Application to ultra-thin polythiophene", *Rev. Sci. Instrum.* **84** 053904 (**2013**). doi:10.1063/1.4804395

32. A. Likhtman, M. Talib, B. Vorselaars, and J. Ramirez, "Determination of tube theory parameters using a simple grid model as an example", *Macromolecules* **46** 1187-1200 (**2013**). doi:10.1021/ma302103p

33. N. F. Martínez, P.M. Kosaka, J. Tamayo, J. Ramírez, O. Ahumada, J. Mertens, T. D. Hien, C. V. Rijn and M. Calleja, "High throughput optical readout of dense arrays of nanomechanical systems for sensing applications", *Rev. Sci. Instruments.* **81**, 125109 (**2010**). doi:10.1063/1.3525090

34. J. Ramírez, S.K. Sukumaran, B. Vorselaars and A.E. Likhtman, "Efficient on the fly calculation of time correlation functions in computer simulations", *J. Chem. Phys.* **133**, 154103 (**2010**). doi:10.1063/1.3491098

35. M. Kapnistos, K.M. Kirkwood, J. Ramírez, D. Vlassopoulos and G.Leal, "Non-linear rheology of model comb polymers". *J. Rheo.*, **53**, 1133-1153 (**2009**). doi:10.1122/1.3191781

36. D. Auhl, J. Ramírez, A. E. Likhtman, P. Chambon and C. Fernyhough, "Linear and non-linear shear flow behavior of monodisperse polyisoprene melts with a large range of molecular weights", *J. Rheo.* **52**, 801-835 (**2008**). doi:10.1122/1.2890780

37. A.E. Likhtman, S.K. Sukumaran and J. Ramirez, "Linear viscoelasticity from molecular dynamics simulation of entangled polymers", *Macromolecules* **40**, 6748-6757 (**2007**). doi:10.1021/ma070843b

38. J. Ramírez, S.K. Sukumaran and A.E. Likhtman, "Hierarchical modeling of entangled polymers", *Macromol. Symp.* **252**, 119–129 (**2007**) (special issue *Statistical Mechanics of Polymers: New developments*, edited by K. Binder, A. R. Khokhlov, V. A. Ivanov and S. I. Kuchanov). doi:10.1002/masy.200750612

39. J. Ramírez, S.K. Sukumaran and A.E. Likhtman, "Significance of cross correlations in the stress relaxation of polymer melts", *J. Chem. Phys.* **126** 244904 (**2007**). doi:10.1063/1.2746867

40. T.C.B. McLeish, D. Hassell, C.K. Chai, J. Ramirez, R.S. Graham, C. Fernyhough, T. Gough, H. Klein and P. Hine, "Multiscale processing", *The Chemical Engineer* **791** 36-39 (May **2007**)

41. Laso M. and Ramirez J., "Implicit micro-macro methods in viscoelastic flow calculations for polymeric fluids". In "*Multiscale modelling of polymer properties*", Edited by M. Laso and E.A. Perpete (Elsevier, Oxford, **2006**), pp 85-108. ISBN 0444521879, 9780444521873. doi:10.1016/s1570-7946(06)80006-4

42. Ramirez J. and Laso M., "Micro-macro 3D calculations of viscoelastic flow". In "*Multiscale modelling of polymer properties*", Edited by M. Laso and E.A. Perpete (Elsevier, Oxford, **2006**), pp 123-142. ISBN 0444521879, 9780444521873. doi:10.1016/s1570-7946(06)80008-8

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Books

1. J. Ramírez, G. Pinto, I. Paz, M.J. Molina, M.C. Matías, J. Martínez Urreaga, A. Fernández López, M.M. de la Fuente, E. Climent, "Química General en Problemas y Cuestiones", (Universidad Politécnica de Madrid, 2018) – ISBN 978-84-697-9930-7

2. A. Fernández, M. M. de la Fuente, J. Martínez, M. C. Matías, M. J. Molina, I. Paz, G. Pinto, J. Ramírez, "Apuntes de Química I". Servicio de Publicaciones de la E.T.S.I. Industriales de la Universidad Politécnica de Madrid. (334 pág.). Madrid, 2016.

3. M.M. de la Fuente, M.A. Fernández, J. Losada, J. Martínez, M.C. Matías, M.J. Molina, M.I. Paz, G. Pinto y J. Ramírez, "Problemas y Cuestiones de Exámenes de Química I", (Universidad Politécnica de Madrid, 2010) – ISBN 978-84-693-7387-3

PhD supervision

1. Anne Beatriz Parra Heming, "Development of a sensing platform", Universidad Politécnica de Madrid, 2024 (unfinished). Co-supervisor: Oscar Ahumada.

2. Javier Oller Iscar, "Crystallization of polymers", Universidad Politécnica de Madrid, 2024 (unfinished). Co-supervisor: María M. Conde.

3. Andrés R. Tejedor, "Dynamics of entangled polymers with drift", Universidad Politécnica de Madrid, 2022 (unfinished)

4. Mohamad Shukor Talib, "Dynamics of entangled polymer chain in a grid of obstacles", supervisors: Alexei E. Likhtman, Jorge Ramirez, Bart Vorselaars. University of Reading, UK, 2013.

5. Timothy Steven Palmer, "Modelling a single polymer entanglement", supervisors: Alexei E. Likhtman, Jorge Ramirez and Mark W. Matsen. University of Reading, UK, 2013.

Participation in PhD Panels

1. Adiran Garaizar, "Multiscale Modelling of Biomolecular Phase Behaviour", supervisors: Rosana Collepardo-Guevara, Jorge R. Espinosa, University of Cambridge, UK, 2022.

2. Jorge R. Espinosa, "Nucleation of Crystalline solids by simulation", supervisors: Eduardo Sanz and Carlos Vega, Universidad Complutense de Madrid, 2017.

3. José Manuel del Rio Campos, "Modelización numérica de interfases cerámica-metal para el análisis de sus propiedades termomecánicas", supervisor: Manuel Rodríguez Hernández. Universidad Politécnica de Madrid, 2005.

Scientific Conferences[1]

1. S. Blazquez, I. Sanchez-Burgos, J. Ramirez, T. Higginbotham, M.M. Conde, R. Collepardo-Guevara, A.R. Tejedor, J. Espinosa, "Location and Concentration of Aromatic-Rich Segments Dictates the Percolating Inter-Molecular Network and Viscoelastic Properties of Ageing Condensates", ICBP 2023 (11th International Congress on Biological Physics), Seoul (Korea), August 14-18, **2023**.
2. A.R. Tejedor, I. Sanchez-Burgos, J. Ramirez, R. Collepardo-Guevara, J.R. Espinosa, "Condensate's ageing modelled through Molecular Dynamics: Protein structural transitions critically transform the network connectivity and viscoelasticity of RNA-binding protein condensates.", ICBP 2023 (11th International Congress on Biological Physics), Seoul (Korea), August 14-18, **2023**.
3. J.O. Iscar, M.M. Conde and J. Ramírez, "Characterization of Associative Polymers through Molecular Dynamics", II Congreso FisEs Joven'23, 16-17 May, **2023**. (Spain)
4. J.O. Iscar and J. Ramírez, "Star-shaped associating polymers by MD simulations", ExxonMobil European Research & Development Days, Brussels (Belgium), April 24-27 2023 (**Poster**).
5. J.O. Iscar, A.R. Tejedor, M. Camarillo, M.M. Conde and J. Ramírez, "Computational Soft Matter Lab (UPM)", ExxonMobil European Research & Development Days, Brussels (Belgium), April 24-27 2023 (**Poster**).
6. I. Sanchez-Burgos, A.R. Tejedor, M. Espinosa, J. Ramirez, R. Collepardo-Guevara, J.R. Espinosa, "Condensate's ageing modelled through molecular dynamics: Protein structural transitions critically transform the network connectivity and viscoelasticity of RNA-binding protein condensates", BPS 2023 (67th Biophysical Society Annual Meeting), San Diego (USA), February 18-22, **2023**. Published in proceedings: *Biophysical Journal* **122**(3) 64a (**2023**). doi: 10.1016/j.bpj.2022.11.555
7. M. Tassieri, M.G. Smith, J. Radford, E. Febrianto, J. Ramírez, H. O'Mahony, A.B. Matheson, G.M. Gibson and D. Faccio, "Machine learning opens a doorway for microrheology with optical tweezers in living systems", British Society of Rheology Midwinter Meeting, Durham, United Kingdom, December 12-13, **2022**.
8. A.R. Tejedor, I. Sanchez-Burgos, M. Estevez-Espinosa, A. Garaizar, R. Collepardo-Guevara, J. Ramirez and J.R. Espinosa, "Inclusion of RNA strands in protein condensates can decelerate pathological structural transitions", XXVIII International Summer School "Nicolas Cabrera", Madrid, Spain, September 2-7, **2022**.
9. C.P. Lamas, J.R. Espinosa, M.M. Conde, J. Ramírez, P. Montero de Hijes, E.G. Noya, C. Vega and E. Sanz, "Studying NaCl crystal nucleation from aqueous solutions", FisEs'22. XXIII Congreso de Física Estadística, Zaragoza, Spain, May 12-14, **2022**.
10. J. Ramirez, J. Oller, A. Rao, B.D. Olsen, "Self-diffusion, rheology and network topology of star-shaped associative polymer gels studied by Molecular Dynamics simulations", AERC 2022, Annual European Rheology Conference, Sevilla, Spain, April 26-28, **2022**.

[1] Al contributions are talks (except where indicated). All conferences are peer reviewed.

11. A. Rao, J. Ramirez, B.D. Olsen, "Mechanisms of Self-Diffusion of Linear Associative Polymers Studied by Brownian Dynamics Simulation", APS March Meeting 2022, Chicago, USA, March 14-18, **2022** (**2022 Frank J. Padden Jr. Award**).

12. A. Rao, I.M. Rasid, J. Ramirez, N. Holten-Andersen, B.D. Olsen, "Effect of Sticker Clustering on Dynamics of Associative Polymer Networks", APS March Meeting 2022, Chicago, USA, March 14-18, **2022** (**Poster**).

13. A.R. Tejedor, A. Garaizar, J. Ramirez, J.R. Espinosa, "Re-entrant behavior in stability and viscosity of protein condensates induced by RNA strands", BPS2022, 66th Biophysical Society Annual Meeting, San Francisco, USA, February 19-23, **2022** (**Poster**).

14. A. Rao, J. Ramirez and B.D. Olsen, "Effect of Sticker Clustering on Self-Diffusion of Associative Polymer Gels Revealed By Brownian Dynamics Simulations", 2021 AIChE Annual Meeting, Boston, USA, November 7-11, **2021** (**Poster**).

15. A. Rao, J. Ramirez and B.D. Olsen, "Role of Chain Walking and Hopping on Anomalous Self-Diffusion in Linear Associative Polymers", 2021 AIChE Annual Meeting, Boston, USA, November 7-11, **2021**.

16. A. R. Tejedor, A. Garaizar, J. Ramírez, J. R. Espinosa, "Re-entrant behaviour in stability and viscosity of protein condensates induced by RNA strands", 11th Liquid Matter Conference 2020/2021, Prague, Czech Republic, 19 – 23 July, **2021** (**Poster**).

17. Andres R. Tejedor and Jorge Ramirez, "Reptation of linear active polymers in melts and concentrated solutions", 14th Annual European Rheology Conference, online, April 13-15 **2021**.

18. Andres R. Tejedor, Jorge Ramirez, Daniel J. Read, and Victor A. Boudara, "RepTate rheology software for the analysis of theories and experimental data", 14th Annual European Rheology Conference, online, April 13-15 **2021** (**Poster**).

19. C. Pulido, J.R. Espinosa, J. Ramirez, M.M. Conde, C. Vega, E. Noya, E. Sanz, "Seeding studies on the nucleation of NaCl in supersaturated solutions", APS March Meeting, Virtual, USA, March 15-19, **2021**.

20. A. Rao, J. Ramirez, I. Mahmad Rasid, N. Holten-Andersen, B. D. Olsen, "Role of Chain Walking and Hopping on Anomalous Self-Diffusion in Linear Associative Polymers", APS March Meeting, Virtual, USA, March 15-19, **2021**. (**Poster**) (**1st prize at 2021 APS DPOLY session**)

21. A. R. Tejedor and J. Ramírez, "Dynamics of entangled active polymers", APS March Meeting, Virtual, USA, March 15-19, **2021**.

22. B. D. Olsen, I. Mahmad Rasid, A. Rao, N.Holten-Andersen, J. Ramirez, "Effect of Sticker Clustering on the Dynamics of Metal Coordinate Associative Polymer Networks", APS March Meeting, Virtual, USA, March 15-19, **2021**.

23. A.R. Tejedor and J. Ramírez, "Entangled polymers beyond reptation: Effect of an internal activity in their dynamical response", 18th International Congress on Rheology, Rio de Janeiro (Brazil, online), December 13-17, **2020**.

24. A.R. Tejedor, V.A.H,. Boudara, D.J. Read and J. Ramírez, "REPTATE rheology software: Toolkit for the analysis of theories and experiments", 18th International Congress on Rheology, Rio de Janeiro (Brazil, online), December 13-17, **2020** (**Poster**).

25. J. Ramírez, "Introduction to RepTate", Workshop "Soft Matter Dynamics: Slow and Fast", Institute of Chemical Research, Kyoto University, Japan, March 25-26, **2020**. Cancelled last minute, due to COVID-19.

26. J. Ramírez, "Relaxation and diffusion of unentangled associating polymers", Workshop "Soft Matter Dynamics: Slow and Fast", Institute of Chemical Research, Kyoto University, Japan, March 25-26, **2020**. (**Invited Talk**) Cancelled last minute, due to COVID-19.

27. J. Ramírez, "Introduction to RepTate", Workshop on Flow-Induced Crystallisation in Polymers, University of Leeds (UK), January 20-22, **2020**.

28. J. Ramírez, "Unravelling the anomalous diffusion behavior of unentangled associating polymers with molecular models", Department Chemie, Johannes Gutenberg-Universität Mainz (Germany), January 16, (**2020**) (**Invited Talk**).

29. M. Tassieri, J. Ramirez, N. Karayiannis, S. Sukumaran, Y. Masubuchi, "i-Rheo GT: Transforming from Time to Frequency Domain without Artefacts", Physical Aspects of Polymer Science 2019, Lincoln (UK), September 11-13 **2019**.

30. J. Ramírez, M. Bagheri and A. Tejedor, "Understanding the diffusion and rheology of unentangled associating polymers with simulations", IBEREO 2019, Porto (Portugal), September 4-6 **2019**.

31. J. Ramírez and A. Tejedor, "Effect of a constant drift in the reptation dynamics of entangled polymers", IBEREO 2019, Porto (Portugal), September 4-6 **2019** (**Poster**).

32. J. Ramírez and A. Tejedor, "Dynamics of entangled active linear polymers", Biological and Bio-inspired Materials: From Responsiveness to Activity (BioReAct 2019), Faculty of Science, Universidad Autónoma de Madrid, June 19, **2019**.

33. J. Ramírez, "Understanding the dynamics of unentangled associating polymers by means of molecular simulations", Theory Talks, Department of Chemistry, University of Cambridge (UK), June 5, (**2019**) (**Invited Talk**).

34. A. Tejedor and J. Ramírez, "Effect of a constant drift in the reptation dynamics of entangled polymers", Thermodynamics 2019 Conference, Punta Umbría, Huelva (Spain), June 26-29, **2019** (**Poster**).

35. J. Ramírez, "Super-diffusion and rheology of unentangled associating polymers explained", International Conference of Polymeric and Organic Materials, Yamagata University, January 24-26, Japan, **2019 (Invited Talk)**.

36. M.M. Conde, J.R. Espinosa, M.A. Portillo, J. Ramirez, P. Gallo, M. Rovere, C. Vega and E. Sanz, "A comparative study of thermodynamic equilibrium of water in solution with NaCl for different force fields", Water X 'Exotic properties of water under extreme conditions', Nice, France, July 13-16, **2018 (Poster)**.

37. A. Zaragoza, J.R. Espinosa, R. Ramos, J.A. Cobos, J.L. Aragones, C. Vega, E. Sanz, J. Ramirez and C. Valeriani, "Phase boundaries, nucleation rates and speed of crystal growth of the water-to-ice transition under an electric field: a simulation study", Water X 'Exotic properties of water under extreme conditions', Nice, France, July 13-16, **2018**.

38. J.R. Espinosa, C. Valeriani, J. Ramirez, P. Rosales-Pelaez, G.D. Soria, A. Zaragoza, C. Vega and E. Sanz, "Understanding homogeneous ice nucleation with computer simulations", Water X 'Exotic properties of water under extreme conditions', Nice, France, July 13-16, **2018**.

39. R. Martinez, F. Alarcon, D. Rogel-Rodriguez, J. Ramirez, J.L. Aragones and C. Valeriani, "Flocking particles with asymmetric obstacles: a model for isolation and sorting motile cells and unicellular organisms", IUTAM Symposium on "Motile cells in complex environments", Udine, Italy, May 14-18, **2018**.

40. J. Ramirez and B.D. Olsen, "Single chain model for unentangled associating polymers", SoftComp Workshop on Functional Polymers, San Sebastian, Spain, March 19-21, **2018**.

41. B.D. Olsen, S. Tang, D. Mai, J. Ramirez, T. Dursch, Y.J. Yang, "Skipping polymer physics", APS March Meeting, Los Angeles, USA, March 5-9, **2018**. (**Invited talk**)

42. J. Ramirez, M. Bagheri and B.D. Olsen, "Stress relaxation and anomalous diffusion in supramolecular networks", APS March Meeting, Los Angeles, USA, March 5-9, **2018**. (**Invited talk**)

43. J. Ramirez, D. Rogel, R. Martinez, F. Alarcon and C. Valeriani, "Effect of the interaction potential in the self-assembling morphologies of active colloids", TAU-ESPCI winter school on 'Active Matter', Tel-Aviv, Israel, January 28 – February 1, **2018** (**Poster**)

44. J. Ramírez, T.J. Dursch and B.D. Olsen, "Mechanisms of Diffusion in associating polymer networks", SUPOLEN ITN Conference, Crete, Greece, September 20-22, **2017**. (**Invited talk**).

45. P. Troya, J. Ramirez and B.D. Olsen, "Extremely slow reptation dynamics of Rod-Coil-Rod Triblock Copolymers", Ibereo 2017, Valencia, Spain, September 6-8, **2017**. ISBN 978-84-697-5123-7.

46. B.D. Olsen, M.K. Sing, J. Ramirez and W. Burghardt, "Simulations and experiments to understand the rheological response of dual associative block copolymer gels", 254th Meeting of the ACS, Washington DC, USA, August 20-24, 2017. Abstracts of papers of the American Chemical Society. Vol. 254., abstract 294, **2017**.

47. B.D. Olsen, J. Johnson, R. Wang, S. Tang, M. Zhong, K. Kawamoto, J. Ramirez, and T. Dursch. "Classical challenges in the physical chemistry of polymer networks", 253rd Meeting of the ACS, San Francisco, USA, April 2-6, 2017. Abstracts of papers of the American Chemical Society, vol. 253, abstract 20, **2017**.

48. J. Ramirez, A. Zaragoza, J.R. Espinosa, R. Ramos, J.A. Cobos, C. Vega, E. Sanz and C. Valeriani, "Effect of a DC electric field on the melting temperature, nucleation and ice growth rate of TIP4P water models", 254th Meeting of the ACS, Washington DC, USA, August 20-24, 2017. (**Poster**). Abstracts of papers of the American Chemical Society, vol. 254, abstract 198, **2017**.

49. J. Ramirez, T.J. Dursch and B.D. Olsen, "Mechanisms of diffusion in associating polymer networks", 254th Meeting of the ACS, Washington DC, USA, August 20-24, 2017. Abstracts of papers of the American Chemical Society, vol. 254, abstract 155, **2017**.

50. J. Ramirez, A. Zaragoza, J.R. Espinosa, R. Ramos, J.A. Cobos, C. Vega, E. Sanz and C. Valeriani, "Effect of an electric field on the melting temperature, nucleation and ice growth rate of TIP4P/ICE water model", WaterSpain 2017, Zaragoza, Spain, 6-7 July **2017**. (**Poster**)

51. J. Ramirez, "Molecular hopping and superdiffusion in associating polymers", III Workshop de la Red de Simulación Molecular, Baiona, Spain, June 18-20, **2017**. (**Invited Talk**)

52. J. Ramirez, T.J. Dursch and B.D. Olsen, "Molecular model for the diffusion of associating telechelic polymer networks", APS March Meeting, New Orleans, USA, March 13-18, **2017**.

53. J. Ramirez, "Anomalous self-diffusion in associating telechelic star polymers", British Society of Rheology Midwinter Meeting 2016, Reading, U.K., December 12-14, **2016**.

54. J. Ramirez, M. Wang and B.D. Olsen, "Dynamics of entangled linear rod-coil-rod block copolymers", XVIIth International Congress on Rheology, Kyoto, Japan, August 8-13, **2016**. (**Poster**)

55. J. Ramirez, "Fluctuations in the number of monomers per entanglement in the Doi-Edwards tube model", XVIIth International Congress on Rheology, Kyoto, Japan, August 8-13, **2016**.

56. J. Ramirez, M. Wang and B.D. Olsen, "Dynamics of entangled linear rod-coil-rod block copolymers", Gordon Research Conference on Polymer Physics, Mount Holyoke College, South Hadley, MA, USA, July 24-29, **2016**. (**Poster**)

57. J. Ramírez, "Theoretical methods for the dynamics of polymeric liquids", Panel on Engineering, Real Colegio Complutense at Harvard, Cambridge MA, USA, March 9, **2016**.

58. J. Ramirez, "Novel 100 % recycled PET/PC blends for substitution of other materials in automotive applications", EIT Raw Materials, Wurzburg, Germany, September 3-4, **2015**.

59. J. Ramirez, N.Ch. Karayiannis and A.E. Likhtman, "Rheology of linear polyethylene melts from atomistic Molecular Dynamics simulations", SoMaS Summer School, Concepts and Methods in Soft Matter, Mittelwihr, France, July 5-10, **2015**

60. J. Ramírez y M. V. Alcázar, "Diseño de polímeros conjugados para aplicaciones fotovoltaicas", Seminarios de Fronteras de la Ciencia de Materiales 2013/14, Dep. Ciencia de Materiales, ETSI Caminos, Canales y Puertos, Madrid, Spain, 17 de Marzo de **2014**.

61. J. Ramírez, M.V. Alcázar, D. Montesinos, S. Orozco, L. Rojo, "Diseño de derivados del 3,6-policarbazol para aplicaciones fotovoltaicas", XXXIV Reunión Bienal de la Real Sociedad Española de Química, 15-18 Septiembre **2013**, Santander, España. ISBN 978-84-695-8511-5.

62. J. Ramírez, N.Ch. Karayiannis, A.E. Likhtman, "Rheology of linear polyethylene melts from atomistic molecular dynamics simulations", XVIth International Congress on Rheology, 5-10 August **2012**, Lisbon, Portugal.

63. A. Likhtman, T.S. Palmer, M.S. Talib, B. Vorselaars, J. Ramírez, "Few "simple" questions of polymer dynamics" (**Keynote**), IUPAC World Polymer Congress, 24-29 June **2012**, Virginia, USA.

64. J. Ramírez, "Dynamics of Entangled Polymer Fluids: Review of Historical Milestones and Challenges for the Future", (**Plenary**), VI Congress of Young Researchers in Polymer Science, 22-26 April **2012**, Islantilla, Huelva, Spain. Published paper: "Nuevos desafíos para la Ciencia y Tecnología de Polímeros", C. Valencia, R. Sánchez, F.J. Navarro, I. Martinez, M.A. Delgado, M. García (eds.), p. 7, ISBN 978-84-15633-14-3.

65. N. Karayiannis, J. Ramírez, A.E. Likhtman, "Rheology of linear monodisperse polyethylene melts from atomistic Molecular Dynamics simulations", APS March Meeting 2012, 27 February- 2 March **2012**, Boston, Massachusetts, EE.UU.

66. S. León, J. Ramírez, I. Moreno, M. U. de la Orden, V. Lorenzo, A. Villaverde, D. Pascual, A. Antelo, C. García and J. Martínez Urreaga, "Multiscale modeling of polycarbonate nanocomposites with optimized properties", 11th European Symposium on Polymer Blends, 25-28 March **2012**, San Sebastián, España.

67. T. Palmer, A. Likhtman, J. Ramírez and M. W. Matsen, "Parameters of slip-springs model of polymer entanglement from the maximum likelihood principle", APS Meeting 2011, 21-25 March **2011**, Dallas, Texas, EE.UU.

68. J. Ramírez and N. Ch. Karayiannis, "Rheology of linear monodisperse polyethylene from atomistic Molecular Dynamics simulations", 3rd Iberian Rheology Meeting, IBEREO 2011, 7-9 September **2011**, Caparica, Portugal. Published paper: "Rheology Trends: from nano to macro systems", M.T. Cidade, I.M.N. Sousa and J.M. Franco (eds.), p. 255-258, ISBN 978-972-8669-50-8 (ISA Press, Lisboa, 2011).

69. N. Ch. Karayiannis and J. Ramírez, "Rheology of linear monodisperse polyethylene melts from atomistic Molecular Dynamics simulations", CECAM/ Dynacop Workshop "Polymer Dynamics: Entanglements and Architectures", Capri, Italy, 26-29 July **2011**.

70. M.S.T. Talib, B. Vorselaars, J. Ramirez, A.E. Likhtman, "Brownian Dynamics simulations of a Rouse chain in an uncrossable grid", 7th Annual European Rheology Conference, Suzdal, Russia, May 10-14, **2011**

71. A.E. Likhtman and J. Ramírez, "Reptate: a free software for analysing rheology of entangled polymers", 82nd Annual Meeting of the Society of Rheology, 24-28 October **2010**, Santa Fe, USA.

72. C. Orfanidou, P.M. Kosaka, J. Mertens, O. Ahumada, N.F. Martínez, A.S. Matar, C. García, J. Ramírez, H-D. Tong, M. Calleja, "Optomechanical multiplexed detection with large arrays of cantilevers", NanoSpain Conference 2010, Malaga (Spain), 23-26 March **2010**. (**Poster**)

73. N. F. Martínez, O. Ahumada, J. Ramírez, A. Salvador and C. Garcia, "Mecwins: Innovation in nanomechanics for biotechnology", 2nd Multifrequency AFM Conference, Madrid (Spain), 15-16 June **2009**. (**Poster**)

74. T. Palmer, A.E. Likhtman and J. Ramirez , "Test of a slip-link model on two-chain polymer entanglement", 5th Annual European Rheology Conference, 15-17 April **2009**, Cardiff, UK

75. J. Ramirez and A.E. Likhtman, "Reptate: A new software toolbox for the analysis of rheological data", 5th Annual European Rheology Conference, 15-17 April, Cardiff **2009**, UK

76. J. Ramírez, "Effect of the fluctuations in the number of monomers per entanglement in the tube model". de Gennes discussion conference, Chamonix (France), 1-5 February **2009**. (**Poster**)

77. J. Ramírez, "Single chain models as a bridge between molecular dynamics simulations and the tube theory", Meeting for Recently Appointees in Polymer Scientists, 17-19 September **2008**, University of Nottingham, UK.

78. J. Ramírez, "Advanced single chain models for entangled polymer dynamics", Iberian Meeting on Rheology, IBEREO 2008, 11-12 September 2008, Madrid, Spain. Published paper: "*Rheology in product design and engineering*", A. Guerrero, J. Muñoz and J.M. Franco eds. (Sevilla, RSEQ, **2008**), ISBN 978-84-608-0779-7.

79. J. Ramírez and A.E. Likhtman, "Finding tube dynamics in a class of slip-links models", International Conference on Rheology, August 3-7 **2008**, Monterey, USA.

80. M. Laso, J. Ramírez, K. Foteinopoulou, F. Coldren, R. Bermejo, J.L. Prieto, I. Romero, N. Jimeno, and M.L. Muneta, "Molecule-based Micro-Macro Methods for Complex Fluids", 10th ESAFORM Conference On Material Forming, Zaragoza (Spain), 18-20 April **2007**. AIP Conference Proceedings, Volume 907, p. 1490-1495, ISBN 978-0-7354-0414-4.

81. J. Ramírez and A.E. Likhtman, "Constraint release in linear entangled polymers with the slip-spring model", 4th Annual European Rheology Conference, April 12-14 **2007**, Naples, Italy

82. A.E. Likhtman, S.K. Sukumaran and J. Ramírez, "Stress relaxation from molecular dynamics simulation of entangled polymers", 4th Annual European Rheology Conference, April 12-14 **2007**, Naples, Italy

83. J. Ramírez and A. E. Likhtman, "Tube versus Slip-spring models: a detailed comparison" 78th Annual Meeting of The Society of Rheology, October 9-11 **2006**, Portland, ME, USA

84. D. Auhl, J. Ramirez, A. E. Likhtman, T.C.B. McLeish, P. Chambon and C.M. Fernyhough, "Shear and elongational behavior in fast flows of monodisperse polymer melts with a wide range of

molecular weights", 78th Annual Meeting of The Society of Rheology, October 9-11 **2006**, Portland, ME, USA

85. K. Jagannathan, D. Auhl, D.J. Read, A.E. Likhtman, R.S. Graham, J. Ramirez, and T.C.B. McLeish, "Fast shear of binary blends of polymer melts: new constitutive models and experimental results", 78th Annual Meeting of The Society of Rheology, October 9-11 **2006**, Portland, ME, USA

86. D. Auhl, J. Ramirez, A.E. Likhtman, T.C.B McLeish, P. Chambon, and C.M. Fernyhough, "Non-linear shear flow behaviour of monodisperse polyisoprene melts", 3rd Annual European Rheology Conference, April 27-29, **2006**, Hersonisos, Crete

87. J. Ramírez and A. E. Likhtman, "Linear and non-linear flow analysis of the slip-spring model of Entangled Polymers", 3rd Annual European Rheology Conference, April 27-29, **2006**, Hersonisos, Crete (**Poster**)

88. J. Ramírez and M. Laso, "Implicit time-dependent micro-macro simulations of complex flows", 2nd Annual European Rheology Conference, April 21-23 **2005**, Grenoble, France

89. J. Ramírez and M. Laso, "Implicit time-dependent micro-macro simulations of complex flows", Workshop on "Multiscale Rheological Models for Fluids", Centre de Recherches Mathématiques (CRM), Université de Montréal, 14-17 November **2004**, Montréal, Canada (**Invited Talk**)

90. J. Ramírez and M. Laso: "Implicit time dependent micro-macro simulations", SIMU conference '*Bridging the scales*', Genova, Italy, 29-31 August **2004** (**Poster**)

91. J. Ramírez and M. Laso, "Simulation of three-dimensional viscoelastic flow using micro-macro methods.", Congress of the Polymer Processing Society, 14-17 September **2003** Athens, Greece. (**Invited Talk**)

92. Simposium organizer of the session "*Molecular Rheology and Simulations"* and chairman of the session "*Modeling and simulation"*, Congress of the Polymer Processing Society, 14-17 September **2003** Athens, Greece. (**Organizational activities**)

93. M. Laso and J. Ramírez, "Implicit micro-macro methods.", XIIIth International Workshop on Numerical Methods for non-Newtonian Flows, 4-7 June **2003**, Lausanne, Switzerland.

94. M. Kröger, J. Ramírez and H.O. Öttinger, "Microscopic approach to the primitive path of a polymer chain.", SIMU conference '*Bridging the time-scale gap*', Konstanz, Germany, 10-13 September **2001** (**Póster**)

95. J. Ramírez and M. Laso, "Conformational kinetics of liquid n-butane by transition path sampling.", 4th International discussion meeting on relaxations in complex systems, 17-23 June **2001** Hersonissos, Crete, Greece.

International Project Meetings[2]

1. J. Ramírez, A.E. Likhtman, "Reptate Update", μPP[2] Project meeting, Leeds, UK, January 14-15, **2009**.

2. J. Ramírez, A.E. Likhtman, D. Auhl and C. Das, "Reptate: New Features Tutorial and Training Course", μPP[2] Project meeting, Bradford, UK, April 2-4, **2008**.

[2] Attendance to periodic international meetings for the duration of some of the European and UK projects in which I have participated. In all meetings, I have contributed with a talk, except where a Poster is indicated.

3. J. Ramirez, A.E. Likhtman, "Reptate update", μPP^2 Project meeting, Cambridge, UK, September 17-19, **2007**.

4. J. Ramirez, A.E. Likhtman, "Reptate: New features", μPP^2 Project meeting, Sheffield, UK, March 27-29, **2007**.

5. J. Ramirez, A.E. Likhtman and S.K. Sukumaran, "Slip-spring vs Tube model", μPP^2 Project meeting, Sheffield, UK, March 27-29, **2007**.

6. J. Ramirez, "Reptate: Review and new features", μPP^2 Project meeting, Durham, UK, September 21-22, **2006**.

7. J. Ramirez, A.E. Likhtman, "Linear and non-linear flow predictions of linear polymer melts using the slip-links model", μPP^2 Project meeting, Durham, UK, September 21-22, **2006**. **(Poster)**

8. J. Ramirez, "Network Area 4 Meeting", SoftComp Network of Excellence Meeting, Venice, Italy, May 2-3, **2006**.

9. J. Ramirez, A.E. Likhtman, "RepTate news & Slip-links simulations", μPP^2 Project meeting, Oxford, UK, March 27-28, **2006**.

10. J. Ramirez, A.E. Likhtman, "Single chain Slip-links model for entangled polymers", μPP^2 Project meeting, Oxford, UK, March 27-28, **2006**.

11. J. Ramirez, and T.C.B. McLeish, "Dielectric relaxation of H-polymers: Predictions from theory", SoftComp Network of Excellence Meeting, Bonn, Germany, October 31-November 1, **2005**.

12. J. Ramirez, A.E. Likhtman, "Molecular Rheology Toolbox", μPP^2 Project meeting, Leeds, UK, September 15, **2005**. (**Poster**)

13. A. E. Likhtman, S.K. Sukumaran, J. Ramirez, D.J. Read, "Building a single chain model of entangled melt", μPP^2 Project meeting, Leeds, UK, September 15, **2005**. (**Poster**)

14. Ramírez, J; Laso, M., "Micro-macro modeling of polymer processing operations", PMILS Project meeting, El Saler, Spain, April 14-15, **2005**.

15. Ramírez, J; Laso, M., "Fine-graining integration of properties", PMILS Project meeting, El Saler, Spain, April 14-15, **2005**.

16. Ramírez, J; Laso, M., "Micro-macro Numerical simulations of viscoelastic flows", PMILS Project meeting, Lyngby, Denmark, October 28-29, **2004**.

17. Ramírez, J, "Micro-macro methods for viscoelastic flow simulation", PMILS Project meeting, Langesund, Norway, April 19-20, **2004**.

18. Ramírez, J.; Laso, M., "Micro-macro modeling of polymer processing operations", PMILS Project meeting, Namur, Belgium, November 3-4, **2003**.

19. Ramírez, J., "Simulation of polymer crystallization enhanced by processing", PMILS Project meeting, Thessaloniki, Greece, May 22-23, **2003**.

20. Ramírez, J.; Laso, M., "Rheomecanical modeling of adhesion experiments", DEFSAM Project meeting, Paris, France, February 17-18, **2003**.

21. Ramírez, J.; Laso, M., "Multi-scale simulation of polymer processes including flow-induced crystallization", PMILS Project meeting, London, UK, November 18-19, **2002**.

22. Ramírez, J.; Laso, M., "Modelling tack experiment and bubble growth", DEFSAM Project meeting, El Saler, Spain, September 23-24, **2002**.

23. Ramírez, J.; Laso, M., "Micro/macro techniques for simulation of polymer processing", PMILS Project Meeting, Madrid, Spain, June 17, **2002**.

24. Ramírez, J.; Laso, M., "Finite element modelling of the tack experiment", DEFSAM Project meeting, Brussels, Belgium, March 4-5, **2002**.

25. Hevia, F.; Laso, M.; Ramírez, J.; Cormenzana, J., "Numerical Modeling of Tack Experiments", DEFSAM Project meeting, Patras, Greece, October 1-2, **2001**.

Scientific Reviewer

2010 – Now **Scientific manuscript reviewer**. Verified (publons.com) of high impact factor journals: The Journal of Chemical Physics, Macromolecules, Journal of Rheology, Soft Matter, Journal of Applied Polymer Science, Rheologica Acta, Fluid Phase Equilibria, Scientific Report, Polymers.

2015 – Now **Scientific project reviewer** for the State Research Agency of Spain.

Teaching experience

02/2019 – Now **Associate Professor** (Profesor Titular de Universidad), Chemical Engineering Department, Universidad Politécnica de Madrid. Modules taught: "General Chemistry" (1st year undergrad), "Stochastic Calculus with Applications" (4th year undergrad), "Introduction to Chemical Engineering Processes" (1st year MSc), "Structure and properties of polymers" (2nd year MSc).

11/2009 –02/2019 **Associate Professor (**Profesor Contratado Doctor), Chemical Engineering Department, Universidad Politécnica de Madrid. Modules taught: "General Chemistry", lab "Inorganic and Organic Chemistry" (1st year Engineering degree), "Experimentation in Chemical Engineering IV" (5th year Chemical Engineering MSc), "Introduction to Chemical Engineering Processes" (1st year Industrial Engineering MSc), "Polymer Science and Engineering" (2nd year Materials Engineering degree), "Mass and Energy Balances" (3rd year Chem. Eng. Undergrad), "Chemical Processes" (1st year MsC Industrial Engineering), "Polymers, Structure and Properties", (2nd year, MsC Chem. Eng.).

09/2007 – 03/2009 **Lecturer**, Department of Mathematics, University of Reading. Modules taught: "Dynamical systems" (3rd year Maths BSc), "Modelling of soft matter" (Maths MSc), "Mathematics for computer science" (1st year Maths BSc), "Computing Techniques and Projects" (Maths MSc), "Calculus and Applications" (1st year Maths BSc), "Matrices, vectors and applications" (1st year, Maths BSc), "Vector Analysis" (1st year, Maths BSc).

11/2003 – 02/2004 **Lecturer** (Profesor Titular Interino), Dep. Ingeniería Química Industrial y Polímeros, Escuela Universitaria de Ingeniería Técnica Industrial, UPM. Modules taught: "Industrial Chemistry I" (2nd year Chemical Engineering), "Basic Operations" y "Industrial Chemistry II" (3rd year, laboratory tutorial).

09/2002 - 09/2004 **Junior Lecturer** (Profesor *ad honorem*), Dep. Ciencia de los Materiales, E.T.S.I. Caminos, Canales y Puertos, UPM. Modules taught: "Polymeric materials

technology" (1st year Materials Engineering), "Polymer science", "Polymer processing" y "Design and applications with non-metallic materials" (2nd year).

Funded Education Innovation Projects

02/2023-11/2023 "Madrid a ciencia cierta: diseño e implementación de rutas guiadas con temática STEAM", UPM, IP: Gabriel Pinto Cañón. Budget: 1300€.

02/2023-11/2023 "Gamificación para las asignaturas de Química e Ingeniería Química en titulaciones STEAM de la UPM (GAMCHEM)", UPM, IP: Patricia García Muñoz. Budget: 1800€.

11/2022 UPM Prize to the Education Innovation Group "Didáctica de la Química".

01/2022-11/2022 "Uso de aplicaciones online en Python/Jupyter para la implementación de actividades de aula invertida en la asignatura Procesos Químicos", UPM, IP: Jorge Ramírez. Budget: 2100€.

01/2022-11/2022 "Implementación de aprendizaje basado en investigación en las asignaturas Materiales Poliméricos, Química I y Recursos para la Didáctica de las Ciencias", UPM, IP: Victoria Alcázar. Budget: 900€.

09/2019-06/2021 "La enseñanza de la Ingeniería Química en el Tercer Milenio: integración efectiva de herramientas computacionales", Universidad de Huelva, IP: Moisés García.

02/2020-11/2020 "Promoting the learning of STEAM topics based on inquiry". UPM, IP: Gabriel Pinto. Budget: 2000€.

02/2020-11/2020 "Implementing a model of circular economy inside the University". UPM, IP: María Luisa Martínez. Budget: 3300€.

01/2019-11/2019 "Design and implementation of a Escape Room on the Periodic Table". UPM, IP: Jorge Ramírez. Budget: 3300€.

01/2018-11/2018 "Chem-innovation". UPM, IP: Gabriel Pinto.

03/2017-11/2017 "Promoting learning by experience in the chemistry lab". UPM, IP: Gabriel Pinto. Budget: 2100€.

09/2014-09/2015 "Design and implementation of a low-cost instrument for the Chemistry lab". UPM, IP: Jorge Ramírez. Budget: 3340€.

09/2014-09/2015 "Chemistry, engineering and society". UPM, IP: Gabriel Pinto. Budget: 3340€.

09/2014-09/2015 "Flipped classroom methods in the Chemical Engineering lab". UPM, IP: Ismael Díaz. Budget: 3340€.

09/2012-09/2014 "New educational resources for chemistry". UPM, IP: Gabriel Pinto. Budget: 2000€.

09/2012-09/2014 "Completing the structure of the final year in the new degree in Materials Engineering". UPM, IP: José Miguel Atienza.

09/2012-09/2014 "New activities to promote creativity in the lab". UPM, IP: Joaquín Martínez. Budget: 3370€.

09/2012-09/2014 "Setting up the evaluation methods for specific and generic competencies in the lab". UPM, IP: Jorge Ramírez. Budget: 3340€.

09/2012-09/2014 "New educational paradigm based on competencies". UPM, IP: Araceli Hernández.

09/2011-09/2012 "Multiple bonds: Chemistry at the different educational levels". UPM, IP: Gabriel Pinto. Budget: 6080€.

09/2011-09/2012 "Reorganizing the chemical engineering labs in the new degrees and masters". UPM, IP: Salvador León. Budget: 4900€.

09/2011-09/2012 "Evaluation of specific and generic competences in the Chemistry lab". UPM, IP: Jorge Ramírez. Budget: 4900€.

09/2010 – 09/2011 "Chemistry labs in Engineering degrees". Proyecto Coordinado Intercentro de la Universidad Politécnica de Madrid. UPM, IP: Gabriel Pinto. Budget: 10000€.

09/2010 – 09/2011 "*Innovation actions for Chemistry modules in the new Engineering degrees*". UPM, IP: Gabriel Pinto Cañón. Budget: 2650€.

09/2010 – 09/2011 "Cooperative process design". UPM, IP: Santos Galán. Budget: 1900€.

09/2010 – 09/2011 "Consolidation and improvement of a new teaching methodology in the degree of Materials Engineering". UPM, IP: Jose Miguel Atienza. Budget: 5000€.

Education Innovation Conferences

1. S. León, J. Bascuñana, E.J. González, M. González-Miquel and J. Ramírez, "Uso de aplicaciones online en Python para actividades de aula invertida con contenidos de Reactores Químicos", VI Congreso de Innovación Docente en Ingeniería Química, Madrid, 11-13 July 2022.
2. J. Ramírez, J. Bascuñana, E.J. González, M. González-Miquel and S. León, "Creación y uso de aplicaciones interactivas online en Python/Jupyter para implementar actividades de aula invertida en Operaciones de Separación", VI Congreso de Innovación Docente en Ingeniería Química, Madrid, 11-13 July 2022.
3. J. Ramírez, "Desarrollo y aplicación de un Escape Room sobre la tabla periódica", seminario virtual: Aplicación de metodologías activas, gamificación y Escape Rooms en el aula, Granada, 6-7 July 2021.
4. C. Román et al., "An example of successful use of simulations into Chemical engineering core matters", 12th International Conference on Education and new learning technologies, 6-7 July, 2020.
5. M. García-Morales et al., "Effective integration of computational tools into Chemical Engineering studies at the international level", 6th International Conference on Higher Education Advances (HEAd'20), June 5, 2020, Valencia, Spain.

6. P. Rosales-Pelaez et al., "Design of a Escape Room based on the periodic table", V International Congress on Learning, Innovation and Competitivity (CINAIC 2019), 9-11 October, 2019, Madrid, Spain.

7. I. Díaz et al, "Flipped classroom methodology in the Chemical Engineering lab". III Conference of Education Innovation in Chemical Engineering, Alicante, January 2016.

8. J. Ramírez et al., "Design of low-cost lab instruments with Arduino". III Conference of Education Innovation in Chemical Engineering, Alicante, January 2016. (**Poster**)

9. J. Ramírez, "Using rubrics to evaluate specific and generic competences". Seminar organized by the Group of Education Innovation in Chemistry, University of Extremadura, Cáceres, July 9 2014. (**invited talk**)

10. J. Ramírez at al, "Implementing the evaluation of competences in the Chemistry lab", V Meeting on the Evaluation of Competencies in the framework of the EHEA, November 13 2013, University Rey Juan Carlos, Madrid, Spain.

11. J. Martínez-Urreaga et al., "New experiences in chemistry modules to promote creativity". XXXIV Meeting of the Spanish Royal Society of Chemistry, September 15-18 2013, Santander, Spain.

12. J. Ramírez et al, "Using rubrics for the evaluation of competences in the Chemistry lab", XXXIV Meeting of the Spanish Royal Society of Chemistry, September 15-18 2013, Santander, Spain.

13. G. Pinto et al., "Evaluation of competencias: a practical case in Chemistry modules in an engineering degree", II Meeting on the Evaluation of Competencies in the framework of the EHEA, Móstoles (Spain), 15 June 2010.

Academic and scientific professional experience (post-doctoral)

06/2023 – Now **Full Professor** (Catedrático de Universidad, tenured position). Chemical Engineering Department, Escuela Técnica Superior de Ingenieros Industriales, Universidad Politécnica de Madrid.

02/2019 – 06/2023 **Associate Professor** (Profesor Titular de Universidad, tenured position). Chemical Engineering Department, Escuela Técnica Superior de Ingenieros Industriales, Universidad Politécnica de Madrid.

11/2009 – 02/2019 **Associate Professor** (Profesor Contratado Doctor). Chemical Engineering Department, Escuela Técnica Superior de Ingenieros Industriales, Universidad Politécnica de Madrid.

09/2007 – 03/2009 **Lecturer** (tenured position), Departament of Mathematics, University of Reading, United Kingdom.

05/2007 – 08/2007 **Post-doctoral research fellow,** Department of Mathematics, University of Reading, United Kingdom. As part of project μPP^2 funded by EPSRC, collaboration with Prof. Alexei Likhtman.

03/2005 – 04/2007 **Post-doctoral research fellow**, Department of Mathematics, University of Leeds, United Kingdom. As part of project μPP^2 funded by EPSRC, collaboration with Prof. Alexei Likhtman and Prof. Tom McLeish.

03/2002 – 03/2005 **Post-doctoral research fellow**, Departamento de Ingeniería Química, Universidad Politécnica de Madrid. As part of projects PMILS and DEFSAM funded by EU, collaboration with Prof. Manuel Laso.

Admin positions

06/2022 – Now **Delegate of the Dean** for the degree of Chemical Engineering.

09/2020 – Now **Head of Department** (Chemical Engineering), UPM.

03/2019 – 03/2022 **Academic advisor**, International Relations Office ETSII, UPM.

09/2017 – Now **Principal Investigator** of the Research Group "Polymers, Characterization and Applications", ETSII, UPM.

09/2007 – 03/2009 **Coordinator of the Student Staff Liaison Committee** in the Mathematics Department, University of Reading.

Non-academic professional experience

04/2009 – 11/2009 **R+D Engineer** at Mecwins S.L., commercial spin off company of the Bionanomechanics lab, Institute of Microelectronics (CSIC). Development of a new technology for genetic analysis.

09/1997 - 02/1998 Training job at SIEMENS S.A., Madrid, Dep. Automation, Tres Cantos, Madrid.

Memberships in Professional & Scientific Societies

2006-now **Society of Rheology** (member number 10659722, subgroup of the *American Institute of Physics*).

2010-now **Spanish Royal Society of Chemistry (**Real Sociedad Española de Química, member number 4902); member of the divisions of Polymers and Rheology.

2020-now Member of the **Governing Board** of the **Spanish Group of Rheology**.

2011-now **American Chemical Society**, (member number 30102758).

2016-now **American Physical Society,** (member number 61220881). Member of DPOLY division.

2021-now Member of the **Official College of Industrial Engineers** of Madrid, (member number 20481).

Extra Academic Studies

2018 Online course: "ACS Reviewer Lab", de la American Chemical Society.

2012	Seminar: “Materials characterization by thermal analysis (DSC, MDSC, TGA, SDT)”, 8h, TA Instruments, Madrid.
2011	Seminar: “Rheological applications for rheometers with separated motor and transducer (Ares and Ares-G2)”, 8h, TA Instruments, Madrid.
2011	Seminar: “Rheology and viscoelasticity”, 8h, TA Instruments, Madrid.
2011	Course: “Advances of Chemistry and their impact in society”, 30h, CSIC, Madrid.
2011	Course: “Advanced use of the Moodle platform”, 12h, UPM, Madrid.
2007-2008	Postgraduate certificate in Academic Practice, 25h, University of Reading, UK.
2004	Postgraduate Course “Teaching in High Education”, 156h, Educational Science Institute, UPM, Madrid.
2001	Postgraduate course “Introduction to numerical analysis”, Profs. Jacques Rappaz and Marco Picasso, EPFL, Laussane, 2001.
1999	Tutorial “Transition Path Sampling”, Prof. David Chandler (University of California, Berkeley) at the *Centre Européen de Calcul Atomique et Moléculaire* (CECAM), Lyon 18-22 October 1999.

Computer skills

Administrator	Network administrator, Windows and Linux systems, at Dep. Chem. Eng. (UPM) and Dep. Math. (U. Leeds and U. Reading). Administrator of HPC cluster (80 CPUs, U. Leeds, 2005-2007). Purchase, installation and administration of HPC cluster (130 CPUs, U. Reading). Purchase, installation and administration of HPC cluster (150 CPUs, UPM). Purchase, installation and administration of HPC cluster (160 CPUs, MIT).
Operating systems	Windows and Linux/Unix (system administrator level)
Programming	C, C++, Python, Fortran 77, Java, Visual Basic, Delphi, Labview. Development of my own simulation codes (Molecular Dynamics, Monte Carlo, Brownian Dynamics) and Finite Element codes (from scratch and using the *dealII* library).
Development	Software platform for the visualization of experimental and simulation data and comparison with different theories (as a part of project μPP^2 of EPSRC). **RepTate** (Rheology of Entangled Polymers: Toolbox for the Analysis of Theory and Experiment). https://reptate.readthedocs.io/.
Scientific Software	Matlab, Mathematica, Maple, Origin, Polyflow, LaTeX, LAMMPS, Gromacs. Contributor to LAMMPS.
Teaching Apps	Several python apps developed as Jupyter notebooks for the introductory module on Basic Operations and Reactors (https://github.com/jorge-ramirez-upm/PQ-Jupyter, in Spanish). Installation, setup and administration of Jupyter-lab site.

Content Mgmt.	Several Wordpress sites. Installation, setup and administration (http://polca.upm.es/, http://blogs.upm.es/compsoftmatter/, http://diquima.industriales.upm.es).

Languages

Spanish	Mother tongue.
English	Fluent (read, written and spoken). *Certificate in Advanced English* (**CAE**, University of Cambridge), grade **A**. TOEFL 2014 (Score 111/120)
French	Fluent (read, written and spoken).