Prof. Yamir Moreno

Contact Information

University of Zaragoza
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Research Interests

Structure and Dynamics of Complex Systems and Networks, Statistical Physics: Complex Systems and Networks, Multilayer Systems, Mathematical Biology, Epidemiology, Structure and Dynamics of Online Social Systems, Evolutionary Game Theory, Human Behavior (experiments), Mutualistic Ecosystems, Synchronization and other nonlinear phenomena.

Current Academic Appointments

Director, Institute for Biocomputation and Physics of Complex Systems (BIFI), University of Zaragoza

Professor, Department of Theoretical Physics, Faculty of Sciences, University of Zaragoza — March 2010 to present

Head of the Complex Systems and Networks Lab, COSNET, Institute BIFI, University of Zaragoza. — March 2003 to present

Principal Scientist, Research Director & Chairman of the Steering Committee, CENTAI Institute, Turin, Italy. — September 2022 to present

External Faculty, Complexity Science Hub Vienna, Austria. — March 2017 to present

Education

University of Zaragoza, Zaragoza, Spain

Ph.D. in Theoretical Physics, September 2000.

- Thesis Title: *Some Stochastic Models of Fracture in Heterogeneous Systems*
- Department of Theoretical Physics
- Summa Cum Laude

University of Havana, Havana, Cuba

M.S. in Theoretical Physics, December 1996.

- Thesis Title: *Criticality in Fragmentation Processes*
- Department of Theoretical Physics
- Summa Cum Laude

B.S., Graduation (Laurea) in Physics, June 1993.

- Faculty of Physics
- Summa Cum Laude

Professional Experience

Director, Institute for Biocomputation and Physics of Complex Systems (BIFI). University of Zaragoza. — Feb 2019 -

Deputy Scientific Director, Area (Mathematics and Complex Systems) Coordinator and Principal Scientist
ISI Foundation, Turin, Italy — October 2017 -August 2022

Deputy Director, Institute for Biocomputation and Physics of Complex Systems (BIFI). University of Zaragoza. — Feb 2015 to February 2019

Elected President, Network Science Society. — June 2018 to July 2022

Elected President, Complex Systems Society. — Sept 2015 to Sept 2018

Scientific Secretary, Institute for Biocomputation and Physics of Complex Systems (BIFI). University of Zaragoza. — Feb 2011 to February 2015

Vice-President, Network Science Society. — June 2015 to June 2018

Vice-president, Complex Systems Society. — Sept 2012 to Sept 2015

Ramón y Cajal Senior Research Scientist, Institute for Biocomputation and Physics of Complex Systems (BIFI) & Department of Theoretical Physics. University of Zaragoza. — Feb 2005 to Feb 2010

Research Scientist, Institute for Biocomputation and Physics of Complex Systems (BIFI) & Department of Theoretical Physics. University of Zaragoza. — Feb 2003 to Feb 2005

Postdoctoral Fellow, The Abdus Salam International Centre for Theoretical Physics, Condensed Matter Group, Trieste, Italy — Sept 2000 to Jan 2003

Associate Professor, Department of Physics, Technological University of Havana, Cuba. — Sept 1997 to Sept 2000

Adjunct Assistant Professor & Associate Researcher, Centre of Renewable Energetic Technologies, Havana, Cuba. — Sept 1994 to Sept 1997

Assistant Professor, Department of Physics, Technological University of Havana, Cuba. — Sept 1993 to Sept 1997

Professional Services

Member, Research Commission, University of Zaragoza. — Since 2022

President, Network Science Society. — June 2018 to July 2022

President, Complex Systems Society. — Sept 2015 to Sept 2018

Advisory Board Member, Network Science Institute, Northeaster University, Boston, USA — Since 2017

Divisional Associate Editor, Physical Review Letters — Sept 2014-Sept 2020

Member of the Future and Emerging Technologies (FET) Advisory Group to the European Commission H2020 Research Program. — Nov 2013- Dec 2017.

Advisory Board Member
WHO Collaborative Center "Complexity Sciences for Health Systems" (CS4HS).
Division of Mathematical Modeling,
University of British Columbia Centre for Disease Control,
Vancouver, British Columbia, Canada March 2013- March 2017.

Editor, PLoS Computational Biology Since 2021

Editor, Journal of Complex Networks Since 2014

Editor, New Journal of Physics 2018-2023

Editor, Chaos, Solitons and Fractals Since 2018

Editorial Board Member, Proceedings Royal Society London A 2022-

Academic Editor, Scientific Reports 2012-2018

Academic Editor, PLoS ONE 2010-2018

Associate Editor, Applied Network Science Since 2016

Associate Editor, Frontiers in Physics Since 2018

Member of the Organizing Committee, Lake Como School on Complex Networks: Theory, Methods and Applications.
First Edition held in May 2015. Currently in its 6th edition. Since 2015

Reviewer, for more than 40 journals including: Nature, Science, Nature Physics, PNAS USA, PRL, Science Advances, Nature Communications, etc

Reviewer, Spanish Ministry of Education and Science (Project proposals and under & post-graduate fellowships).

Reviewer, French National Research Agency (ANR).

Reviewer, European Commission, FP6, FP7 and H2020 Programs.

Reviewer, The Netherlands Organization for Scientific Research (NWO).

Panel Member for the selection of an IBS? (Institute for Basic Sciences) Institute Director. Seoul, Korea.

Reviewer, Academy of Sciences of Finland.

Honors and Awards

- 2022 Service Award of the Complex Systems Society.
- Fellow of the Network Science Society, 2022.
- Fellow of the American Physical Society, 2021.
- ISI WoS Highly Cited Scientist (i.e, within the top 1% of most cited scientists) 2019.
- 2019 CSS Senior Scientific Award (this is the Complex Systems Society award to a scientific career).
- First-class ISI Fellow (Institute for Scientific Interchange, Turin, Italy), 2013.
- Member of the Spanish Royal Physics Society.
- Member of the European Physical Society.
- Member of the American Physical Society.
- Outstanding American Physical Society Reviewer (2009).
- Plenary Speaker for the prestigious Conference Cycles of Cosmo-Caixa. Barcelona, October 2009. Subject: Natural Selection and Evolution.
- Outstanding Europhysics Letters Reviewer (2008).
- Ramón y Cajal Fellow, 2005-2010.
- PhD Fellowship from the Spanish Ministry of Foreign Affairs, 1997-2000.
- 1997 Outstanding Teaching Award of the Minister for Education, Havana, Cuba.

- Our review article "Complex Networks: Structure and Dynamics", Physics Reports 424, 175-308 (2006) is the most cited Physics Reports paper of all time.
- Article "Evolutionary Game Dynamics in a Growing Structured Population", New Journal of Physics, 11, 083031 (2009), selected "Best of 2009" by IoP.
- Author of the most cited article of the University of Zaragoza, Zaragoza, Spain.

Conference Organization and Program Committees

- co-organizer of the STATPHYS28 Satellite Meeting "New Frontiers in Complex Networks", Busan, Korea, August 2-6, 2023.
- co-Chair of NetSci-X 2023, Buenos Aires, Argentina, February 7-10, 2023.
- co-Chair of the Workshop "Theoretical Challenges in Network Science", Seoul, Korea, September 26-30, 2022.
- Chair of the Organizing Committee of the BIFI 2022 International Conference, Zaragoza, June 7-9, 2022.
- Steering Committee of Networks 2021: A Joint Sunbelt and NetSci Conference. Virtual, July 5-10, 2021.
- Chairman of the Steering Committee of the Complex Systems Society (the committee selects the venue and oversees the Conference on Complex Systems). Since Jan 2019.
- Co-Chair, International Workshop on Theoretical Perspectives in Network Science, Seoul, Korea. December 7-9, 2018.
- Program Committee Chair, International School and Conference on Network Science, Paris, France, Jun 11-15, 2018.
- Chairman, BIFI International Conference on Complexity, Networks and Collective Behavior, Zaragoza, Spain, Feb 6-8, 2018.
- Macfang "Mapping Complexity Foundations and Applications of Network Geometry", Barcelona, November $6-8$, 2017
- Complex Networks 2017, 6th International Conference on Complex Networks and Their Applications, Lyon, France. Nov 29-Dec 1 (2017).
- CCS'17, Conference on Complex Systems 2017. Cancun, Mexico. Sept 17-22 (2017).
- Program Committee Member. SIAM Workshop on Network Science, Pennsylvania, USA. Jul 13-14 (2017).
- IC2S2 2017, 3rd International Conference on Computational Social Science, Cologne, Germany. Jul 10-13 (2017).
- NetSci 2017, International School and Conference on Network Science, Indianapolis, USA, Jun 19-23, 2017
- Program Committee Member. SIAM Workshop on Network Science, Pennsylvania, USA. Jul 13-14 (2017).
- Program Committee Member. COMPLEX NETWORKS 2016, 5th International Workshop on Complex Networks and their Applications, Milan, Italy. Nov 29-Dec 1st, 2016.
- Program Committee Member. Conference on Complex Systems, Amsterdam, The Netherlands (2016).
- Co-organizer of the 2016 CCS Satellite Meeting "Modeling of Disease Contagion Processes, 5th Edition" (together with V. Colizza and C. Poletto).
- Co-organizer of the 2015 CCS Satellite Meeting "Modeling of Disease Contagion Processes, 4th Edition" (together with V. Colizza).
- Chairman, International School and Conference on Network Science, NetSci 2015. Zaragoza, June 1-5, 2015.
- Member of the Program Committee. European Conference on Complex Systems, ECCS14. September 22-26. Lucca, Italy, 2014.
- Co-organizer of the 2014 ECCS Satellite Meeting "Modeling of Disease Contagion Processes, 3rd Edition" (together with V. Colizza, C. Poletto, and S. Meloni).
- Satellites Chair of the NetSci 2014 Conference, Berkeley, California, June 2-6, 2014.
- Co-organizer of the 2013 ECCS Satellite Meeting "Modeling of Disease Contagion Processes" (together with V. Colizza, C. Poletto, and S. Meloni).

- Co-organizer of the 2013 NetSci Satellite Meeting "Dynamic Networks: Theory and Applications in Information and Communication Networks" (together with F. Schweitzer and Maarten van Steen).
- Member of the Program Committee of the ECCS '12 Satellite Meeting: Data-Driven Modeling of Contagion Processes - Brussels, September 5th, 2012.
- Member of the Program Committee of the WWW2012 Conference. Lyon, France. April 2012.
- Member of the Scientific Committee of the Conference NET-WORKS11, El Escorial, Madrid, Spain. 2011.
- Chairman of the International Conference: "BIFI 2010: IV International Congress: Networks, A Framework for Cross-Disciplinary Applications", Zaragoza, Spain, 2010.
- Member of the Scientific & Organizing Committees of the Conference NET-WORKS10, University of Zaragoza. Spain. 2010.
- Member of the Program Committee of the "IEEE International Workshop COMPENG 2010 - Complexity in Engineering", Rome, Italy (Feb 22-24, 2010).
- Member of the Organizing Committee of the IV National BIFI Conference, University of Zaragoza. Spain. 2009.
- Member of the Scientific Committee of the BCNet Workshop 2008, Barcelona, Spain, December 2008.
- Member of the Scientific Committee of the Conference NET-WORKS08, University of Navarra, Spain. 2008.
- Member of the Technical Program Committee of the International Conference "BIONETICS 2007: 2nd International Conference on Bio-Inspired Models of Network, Information, and Computing Systems", Budapest, Hungary (10-13 Dec 2007).
- Member of the Scientific Committee of the Conference NET-WORKS07, University of Rey Juan Carlos, Aranjuez, Spain. 2007.
- Member of the Organizing Committee of the III National BIFI Conference, University of Zaragoza. Spain. 2007.
- Chairman of the International Conference: "BIFI 2006 II International Congress: From Physics to Biology: The Interface between Experiment and Computation", Zaragoza, Spain.
- Member of the Organizing Committee of the Neuroscience Meeting Series (once a year, local meetings to promote the exchange of knowledge among researchers of different fields within the subject of Neuroscience, University of Zaragoza, Spain).

Major Keynote, Invited and Contributed Talks

- Keynote Speaker, "Contagion dynamics on single, multilayer, and higher-order networks", 28th International Conference on Statistical Physics, Statphys28. Tokyo, Japan, August 7-11, 2023.
- Keynote Speaker, "COVID-19 pandemic: insights and lessons for network epidemiology", KIAS-KENTECH Mini Workshop, KIAS, Seoul, July 31, 2023.
- Invited Speaker, "On the role of human behavior during the spreading of diseases", StatPhys28' Satellite Meeting "New Frontiers in Complex Networks", Busan, Korea, August 2-6, 2023.
- Lecturer, School of the NetSci-X 2023 Conference, Buenos Aires, Argentina, February 7-10, 2023.
- Keynote Speaker, "A critical revision of spreading dynamics on single, multilayer, and higher-order networks", Workshop on Theoretical Challenges in Network Science, Seoul, Korea, September 26-30, 2022.
- Keynote Speaker, "A data-driven perspective of the COVID-19 pandemic", International Conference on Emerging Trends in Mathematical Science and Computing (IEMSC-22), Kolkata, India. February 4-6, 2022 (online meeting)
- Invited Speaker, "A data-driven perspective of the COVID-19 pandemic", IAS Workshop on Network Dynamics, Technical University of Munich. July 26-28, 2021 (online meeting)
- Invited Speaker, "Modeling of COVID-19 pandemic", Focus Session of the German Physi-

cal Society (DPG) Spring Meeting 2021. March 22-24, 2021 (online meeting).

- Keynote Speaker, "Data-driven Modeling of COVID-19", IC2S2 (International Conference on Computational Social Science), Boston, USA (online conference). July 17-20, 2020.
- Contributed Talk, "Biodiversity and Structural Stability of Multilayer Ecological Networks", NetSci-X 2020, Tokyo, Japan. Jan 20-23, 2020.
- Plenary Speaker, "Synchronization of Phase Oscillators in Complex Networked Systems", DINCON2019 (Brazilian Conference on Dynamical Systems, Control and Applications), USP Sao Carlos, Brazil. Nov 25-27, 2019.
- Plenary Speaker, "From Scaling and Criticality to Complexity and Networks; and Back", talk and acceptance speech of the 2019 CSS Senior Scientific Award, 2019 Conference on Complex Systems, Nanyang Technological University, Singapore. Sep 30-Oct 4, 2019.
- Invited Speaker, "Disease spreading processes through the lens of multilayer networks", Threshold Networks' Workshop, University of Nottingham, UK. July 22-24, 2019.
- Plenary Speaker, "On the emergence of synchronization of coupled oscillators in complex networks". Satellite "Information, Self-Organizing Dynamics, and Synchronization on Networks (ISODS)", NetSci 2019, Burlington, Vermont, May 27-31, 2019.
- Invited Speaker, "Spreading Dynamics on Directed Multilayer Networks", DANCE (Data Analytics for Climate and Earth: Causality, patterns and prediction) Workshop, University of California Irvine, Irvine, USA. March 27-29, 2019.
- Keynote Speaker, "Diffusion Dynamics on Directed Multilayer Networks", International Workshop on Theoretical Perspectives in Network Science, Seoul, Korea. December 7-9, 2018.
- Invited Speaker, "Emergence of Consensus and Topical Alignment in Online Social Systems", Conference on Complex Systems CCS2018 Satellite "Understanding Opinion and Language Dynamics using massive data", Thessaloniki, Greece. September 24-28, 2018.
- Invited Speaker, "The Nested Structural Organization of the Worldwide Trade Multilayer Network", Conference on Complex Systems CCS2018 Satellite "Economic Fitness and Complexity", Thessaloniki, Greece. September 24-28, 2018.
- Invited Speaker, "Diffusion Processes on Multilayer Networks", NetSci 2018 Satellite "Networks of Networks: Systemic Risk and Infrastructural Interdependencies", Paris, France. June 11-15, 2018.
- Invited Speaker, "The Epidemiology of Tuberculosis: Challenges and Opportunities", NetSci 2018 Satellite "Networks in disease ecology: modeling interacting pathogens, multiple host layers, and evolution", Paris, France. June 11-15, 2018.
- Invited Speaker, "Multilayer Systems: From Diffusion Processes to Transportation Networks", Workshop "Transversal problems on Complexity", Cergy, France. May 23-24, 2018.
- Invited Speaker, "Synchronization Transitions in Complex Networks", AMCOS'18 (Analysis and Modeling of Complex Oscillatory Systems), Barcelona, Spain. March 19-23, 2018.
- Invited Speaker, "From Small to Big Data: The Physics of Human Behavior", Workshop "Social Informatics: en route towards Asimov's Psychohistory?", Complexity Science Hub Vienna, Vienna, Austria. January 21- February 2nd, 2018.
- Keynote Speaker, "Disease Spreading Processes in Multilayer Networks", BeNet-2017 Belgian Networks Research Meeting Ghent, Belgium. December 6, 2017.
- Invited Speaker, "Disease Spreading in Multilayer Networks", Symposium of the Japan Society of Mathematical Biology, Hokkaido, Japan. October 6-8, 2017.
- Invited Speaker, "Cooperation among Humans: Results from the Lab", Satellite "Evolutionary Game Dynamics" at the 1st Latin American Conference on Complex Networks, Puebla, Mexico. September 25-29, 2017.
- Plenary Speaker, "Recent insights into the Structure and Dynamics of Mutualistic Ecosystems", 1st Latin American Conference on Complex Networks, Puebla, Mexico. September 25-29, 2017.
- Opening Talk, "Current Challenges in Computational Social Sciences", Conference on Complex Systems CCS2017 Satellite "Computational Social Science and Complexity: From

Socio-Physics to Data-Driven Research", Cancun, Mexico. September 17-22, 2017.

- Invited Speaker, "Promoters of Human Cooperation", IBSEN Workshop, Aalto University, Finland. September 5-7, 2017.
- Invited Speaker, "Disease spreading processes through the lens of multilayer networks", Workshop on Advances on Epidemics in Complex Networks. Delft University of Technology, The Netherlands. August 31-September 1, 2017.
- Invited Speaker, "A data-driven model for the assessment of age-dependent patterns of Tuberculosis burden and impact evaluation of novel vaccines", Satellite "Contagion on Networks 2017" at the International School and Conference on Network Science, Indianapolis, USA, Jun 19-23, 2017.
- Invited Speaker, DOOCN Satellite at NetSci'17, "Multilayer systems: from diffusion processes to transportation networks". International School and Conference on Network Science, Indianapolis, USA, Jun 19-23, 2017.
- Invited Speaker, "Multilayer Networks in Biology: from the cellular to the population level", Satellite "Network Medicine: Quantitative interactome and multilayer networks taking medicine beyond the genome" at the International School and Conference on Network Science, Indianapolis, USA, Jun 19-23, 2017.
- Speaker, International School and Conference on Network Science, Indianapolis, USA, Jun 19-23, 2017.
- Keynote Speaker, Complex Networks 2016, 5th International Workshop on Complex Networks and their Applications, Milan, Italy. Nov 29-Dec 1st, 2016.
- Keynote Speaker, "Delving into behavioral responses when humans face social dilemmas". CCS16 Satellite "Evolutionary Game Theory: From Biology to Social Systems". Amsterdam, Netherland. 19-22 September 2016.
- Invited Speaker, "Contagion Processes in Multilayer Networks", Complex Networks: from theory to interdisciplinary applications (a Satellite Meeting to Statphys26), July 11-13, 2016. Marseille, France.
- Keynote Speaker, "Influence of network structure in mutualistic ecosystems", Summer Solstice 2016, 8th International Conference on Discrete Models of Complex Systems, June 20-22, 2016. Aveiro, Portugal.
- Invited Speaker, "Dynamics of Interacting Diseases", Workshop on Multilayer and Interconnected Networks: Epidemic Processes and Robustness, June 8, 2016. Girona, Spain.
- Invited Speaker, "Visions for Complexity" Kick-off Meeting of the Complexity Science Hub Vienna, May 23, 2016. Vienna, Austria.
- Invited Speaker, "Use and Misuse of Networks in Biology", Symposium on Biological Information Processing, Max Planck Institute for Biological Cybernetics, April 26-29, 2016. Tubingen, Germany.
- Invited Lecturer, "Contagion Processes in Complex Multilevel Networks", ICMS/KNAW Complexity Science Winter School, December 14-18, 2015. TU Eindhoven, Netherland.
- Invited Speaker, "From small to big data: The physics of human behavior", IIASA Systems Analysis 2015, November 11-13, 2015. Vienna, Austria.
- Keynote Speaker, "Dynamics of Interacting Diseases", FISES?15 Conference, October 5-7, 2015. Badajoz, Spain.
- Keynote Speaker, "Synchronization Processes on Complex Networks", Fourth Workshop on Nonlinear Dynamics and Synchronization (INDS'15), July 30-31, 2015. Klagenfurt, Austria.
- Invited Talk, "Contagion processes on multilayer systems", Workshop Mathematics and Physics of Multilayer Complex Networks, July 6-8, 2015. MPI for the Physics of Complex Systems, Dresden, Germany.
- Keynote Speaker, "From small to Big Data", International Conference on Socio-cybernetics, June 29-30, 2015. Zaragoza, Spain.
- Invited Talk, "The Physics of Human Behavior". 25th Granada Seminar, June 15-19, 2015. Granada, Spain.
- Invited Talk, "Dynamics of Interacting Diseases". ECCS?14 Satellite Multiplex Networks

2014: Towards the understanding of a complex world. Lucca, Italy, September 23, 2014.

- Invited Talk, "Forecasting Large-scale Social Phenomena". ECCS?14 Satellite Dynamics on and of Complex Networks. Lucca, Italy, September 24, 2014.
- Invited Talk, "Recent experiments on Humans playing a Prisoner?s Dilemma: age and reputation effects" Workshop on Spatial Human Cooperation: from Theory to Experiments and back, MPI for Evolutionary Biology, Plön, Germany, May 2014.
- Contributed Talk, "Dynamic Systems: From Statistical Mechanics to Engineering Applications". Zurich, Switzerland, January 2014.
- Plenary Invited Speaker at the European Conference on Complex Systems (ECCS 2013), Barcelona, Spain. September 2013.
- Invited Speaker at ECCS 2013 Satellite "Collective Contagion", Barcelona, Spain. September 2013.
- Invited Speaker at ECCS 2013 Satellite "Global Computing for our Complex Hyper-connected World", Barcelona, Spain. September 2013.
- Invited Speaker at the Second Symposium of the Institute for Basic Science "Towards a Theoretical Description of Nonlinear Dynamics in Complex Systems", Seoul, Korea. August 2013.
- Contributed talk at the "Workshop on Time-dependent and Multiplex Networks", University of Oxford, Oxford, UK. July 2013.
- ISI Fellows award from the ISI Foundation, Turin, Italy. The ceremony took place on June 27th, 2013, followed by the conference "The Being of Science" in which all ISI Fellows shared their vision with the public and gave an invited talk.
- Invited Lecturer (course "Networks: Structure and Diffusion Dynamics") at the Summer School "Emergent Dynamics of Discrete & Stochastic Multiscale Systems: analysis & simulation", TU Eindhoven, The Netherlands. June 2013.
- Invited Speaker at the Workshop "Uncertainty in Interactions Networks", Bath University, UK. June 2013.
- Invited Speaker at the Final Conference of Cyberemotions, Warsaw, Poland. January 2013.
- Invited Lecturer at the School "Complex Networks in Action", University of Catania, Catania, Italy. September 2012.
- Invited participant to the Workshop "Complex Systems Analysis: Advancing Health Systems Policy Design and Planning". Bellagio, Italy, September 2012.
- Invited Speaker at the National Conference "Nolineal 2012". University of Zaragoza, Zaragoza, Spain. June 2012.
- Keynote Speaker at "XXXIII Annual Meeting of the Neurology Society of the Basque Country", Villabuena de álava, Spain. March 2012.
- Invited Speaker at the "V BIFI International Conference: Protein Targets, Discovery of Bioactive Compounds", Zaragoza, Spain. February 2012.
- Keynote Speaker at "Third Course on Network Science", organized by the Orange Chair at UPM, Madrid, Spain. 2011.
- Invited Speaker at "An Evolutionary Journey II", Universidad Carlos III, Madrid. 2011.
- Keynote Speaker at Workshop "Sinergia", organized by Arts Santa Monica, Barcelona, Spain. 2011.
- Keynote Speaker at Workshop "Robustness of Complex Networks", Delft, The Netherlands. 2010.
- Invited Talk, STATPHYS 2010 Satellite Meeting: New Frontiers in Complex Networks. Seoul, Korea. 2010.
- Invited Talk, Complex Energy Landscapes: Computational and Statistical Methods for Soft Matter. ZCAM, Zaragoza, Spain. 2010.
- Contributed Talk, Statistical Physics and Game Theory. Aland, Finlandia. 2009.
- Invited Talk, Complejidad: Nuevos retos en la Ciencia y la Tecnologia. Universidad Rey Juan Carlos, Spain. 2009.
- Invited Talk, International Workshop "Evolution and Co-evolution". Universidad Carlos III, Madrid, Spain. 2009.

- Contributed Talk, NET-WORKS 08. Universidad de Navarra, Pamplona. 2008.
- Plenary Speaker, Non-Lineal 2008. Universidad Politécnica de Cataluña, Barcelona. 2008.
- Contributed Talk, Statistical Physics FISES 08. Universidad de Salamanca, Spain. 2008.
- Invited Talk, Bio-inspired Complex Networks in Science and Technology: From Topology to Structure and Dynamics. Max Planck Institute, Dresden, Germany. 2008.
- 2 Invited Talks, CNET-07 Workshop on Complex Networks. University of Aveiro, Aveiro, Portugal. 2007.
- Plenary Speaker, NET-WORKS-07. Universidad Rey Juan Carlos, Aranjuez, Spain. 2007.
- Contributed Talk, Non-Lineal 2007. Universidad de Castilla la Mancha, Ciudad Real. 2007.
- Invited Talk, BIOWIRE-07: Workshop on Bio-inspired design of Networks. Computer Lab, Cambridge University, UK. 2007.
- Invited Talk, Dynamics on Complex Networks and Applications. Max Planck Institute, Dresden, Germany. 2006.
- Invited Talk, Workshop on Networks and Dynamical Processes: Epidemics, Social Contacts and Percolation. University of Bath, U.K. 2005.
- Plenary Speaker, XIX Congress of Differential Equations y Applications & IX Congress of Spanish Society of Applied Mathematics. Universidad Carlos III, Madrid. 2005.
- Invited Talk, FISES-05. Madrid, Spain. 2005.
- Invited Talk, Workshop on the Structure and Function of Complex Networks. International Centre for Theoretical Physics (ICTP), Trieste, Italy. 2005.
- Contributed Talk, Workshop on Synchronization of Complex Networks. University of Barcelona, Barcelona, Spain. 2004.
- Invited Talk, DIMACS Working Group Meeting on Analogies between Computer Viruses and Immune Systems and Biological Viruses and Immune Systems. Rutgers University, NJ, USA. 2002.

MOST RELEVANT INVITED SEMINARS

- Data-driven modeling of infectious diseases: what can data tell models and what can models ask data?, Covid Crisis Lab, Bocconi University, November 22, 2022.
- A data-driven perspective for the mathematical modeling of the COVID-19 pandemic, MIT Computational Social Science Lunch Talk, March 22, 2022.
- Contagion dynamics on single, multilayer, and higher-order networks, APS-GSNP's klogW series, February 22, 2022.
- A data-driven perspective for the mathematical modeling of the COVID-19 pandemic, White Rose Mathematical Biology Seminars, November 17, 2021.
- Data-driven modeling to control the COVID19 pandemic. Virtual Invited Seminar at the Spanish Royal Academy of Engineering (in Spanish). July 15, 2021.
- Data-driven modeling of COVID19 pandemic. Virtual Seminars on Complexity, Center for Complexity and Biosystems, University of Milan, Italy. September 8th, 2020.
- Epidemias Globales: Pasado, Presente y Futuro. Online Webinar delivered for Centro de Ciencias de la Complejidad, Mexico City, Mexico. May 2020.
- Global diseases: the case of COVID-19. Webinar delivered for Kampal Data Solutions S.L. April 15th 2020, Zaragoza, Spain.
- Complexity, the Science of the 21st Century, Institute of Mathematics and Computer Science, University of Sao Paulo (USP) at Sao Carlos, Sao Carlos, Brazil. November, 2019.
- Predicting Global Pandemics, Southern University of Science and Technology, Shenzhen, China. July, 2019.
- Disease spreading processes in complex networked systems, Harbin Institute of Technology, Shenzhen, China. June, 2019.
- Synchronization dynamics on networks, Harbin Institute of Technology, Shenzhen, China. June, 2019.
- Global Epidemic Outbreaks: a threat to humankind. Public Lecture given (in Spanish) at the Ibercaja Foundation invited by the Academy of Sciences of Aragon. Zaragoza, Spain. March 21, 2019.

- Structure and Dynamics of Multilayer Networks. Seminar given at the Department of Physics, Seoul National University, Seoul, Korea. December 11, 2018.
- Promoters of Human Cooperation: Theory vs Experiments. Seminar given at the Polytechnic University of Milan, Milan, Italy. July 10th, 2018.
- Complexity, Networks and Systems Thinking. Invited Lecture given at the European Defense Agency, Brussels, Belgium. June 5th, 2018.
- Multilayer networked systems: from diffusion processes to transportation networks. Seminar given at Network Science Institute, Northeastern University, Boston. June 16, 2017.
- Promoters of Human Cooperation: results from the Lab. Seminar given at Network Science Institute, Northeastern University, Boston. June 14, 2017.
- Multilayer systems: from diffusion processes to transportation networks. Seminar given at Qatar Computing Research Institute, Doha, Qatar. May 2017.
- The Physics of Human Behavior. Seminar given at the Faculty of Economics, University of Zaragoza, Zaragoza. April 15, 2016.
- Multilayer Networks. 2-hour Lesson taught to Master students at Network Science Institute, Northeastern University, Boston. November 20, 2015.
- Current topics in Complex Network Research. Informal Seminar and Discussions at Gene Stanley's Group, Boston University, November 20, 2015.
- Use and Misuse of Networks in Biology, Seminar given at Sharma Lab, Channing Division of Network Medicine, Harvard Medical School, Harvard University, Boston. November 19, 2015.
- Delving into Behavioral Responses when Humans face Social Dilemmas. Visiting Speaker at Network Science Institute, Northeastern University, Boston. November 18, 2015.
- Contagion Dynamics in Complex Networked Systems. Applied Math Seminar gave at the University of Southampton, United Kingdom, March 18, 2014.
- Diffusion processes on complex networked systems. Invited seminar given at the Department of Mathematics, Queen Mary University, London, UK. July 2013.
- Online Networks and the Diffusion of Protests. Invited seminar given at ETH Zurich, Switzerland (December 2012).
- Techno-social networks and the diffusion of collective social phenomena. Talk addressed at the "Scuola Lagrange Sistemi Complessi", ISI Foundation, Turin, Italy (July 2012).
- Online Networks and the Diffusion of Protests. Dep. of Biomedical Engineering and Computational Science (BECS), Aalto University, Espoo, Finland (April 2012).
- The 15-M Movement and the Social Media. Talk addressed to a general public at Ibercaja Zentrum, Zaragoza, 2011.
- The Dynamics of Protest Recruitment through an Online Network. Talk addressed to a general public at Cosmo-Caixa Madrid, 2011.
- Transcriptional regulatory network and epidemiology of Tuberculosis. School of Informatics, Indiana University, Bloomington, USA (November 2010).
- Complex Networks: From the Biomolecular to the Social, Faculty of Medicine, University of Zaragoza, Spain (April 2010).
- The Evolution of Evolutionary Theory, Invited Conference on Natural Selection, Cosmo-Caixa, Barcelona, Spain (October 2009).
- Evolutionary Dynamics on Graphs. ETH Zurich, Switzerland. (November, 2008).
- Evolutionary Game Dynamics on Networks. ISI Foundation, Turin, Italy. (August, 2008).
- Complex Networks: The Case of Epidemic Spreading. Department of Mathematics, Universidad Rey Juan Carlos, Móstoles, Madrid, Spain. (October, 2007).
- Paths to Synchronization in Complex Networks. Department of Mathematics, Bath Institute for Complexity, University of Bath, U.K. (September, 2006).
- Paths to Synchronization in Complex Networks. Complexity Research Group, BT Exact, British Telecom Laboratories, Ipswich, U.K, (August, 2006).
- The Structure of P2P Networks. Universidad Rovira i Virgili, Tarragona, Spain. (March, 2006).
- Complex Networks in Biology. Institute for Biocomputation and Physics of Complex Sys-

tems (BIFI), (April, 2005).

- Traffic Handling and Covering Problems in Communication Networks. Complexity Research Group, BT Exact, British Telecom Central Laboratories, Martlesham, Suffolk, U.K. (March, 2005).
- Dynamics of Complex Gene Expression Networks. University of Rome "La Sapienza", Rome, Italy. (February, 2004).
- Synchronization of Coupled Oscillators in Complex Networks. Donostia International Physics Center, Universidad del Pais Vasco, San Sebastián, Spain. (January, 2004).
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- "*Dynamics of Complex Networked Systems (DYCONS)*". Ministry of Science and Innovation (MCIN), Spain. Grant PID2020-115800GB-I00. 2021-2023. PI. €116,160.
- "*Complexity Science for Sustainable and Healthy Nutrition*". ISI Foundation's Industrial Project (funder confidential) 2021-2022. co-PI. €441,900.
- "*Knowledge At the Tip of Your fingers: Clinical Knowledge for Humanity (KATY)*". European Union. H2020-SC1-FA-DTS-2018-2020 Project. 2021-2025. PI. €8,479,900 (including €200,000 to the University of Zaragoza).
- "*Data-driven computational platform for scenario evaluation and mitigation of COVID-19 pandemic in Spain*". Government of Aragon, Spain. 2020-2021. PI. €72,000.
- "*Computational infrastructure for COVID-19 scenario evaluations*". Santander Bank, Spain. 2020. PI. €7000.
- "*AccelNet: Accelerating Discovery in Multilevel Network Science*". Collaborative Project. National Science Foundation, USA. Project coordinated by Indiana University Bloomington (PI Santo Fortunato) and Northeastern University Boston (PI Alessandro Vespignani). Role: PI of one (ISI Foundation) of the 4 European Institutions participating. USD 1,100,000.
- "*Bio-computational approaches applied to the development of TB vaccines: epidemiological modeling, efficacy simulations and immunogenetics analyses*". Government of Aragon, Spain. Grant LMP117-18. 2019-2020. PI. €84,650.
- "*Tackling Complexity in Socio-technical, Biological and Natural Systems (TAPLEX)*". Ministry of Economy and Competitiveness (MINECO), Spain. Grant FIS2017-87519-P. 2018-2020. PI. €169,400.
- "*Bridging the Gap: from Individual Behavior to the Socio-technical Man (IBSEN)*". European Union. FET Project. 2015-2018. PI. €2,663,238 (including €350,000 to the University of Zaragoza).
- "*Distributed Global Financial Systems for Society (DOLFINS)*". European Union. Project under the call FET Proactive Global Systems Science. 2015-2017. PI. €3,650,000 (including €250,000 to the University of Zaragoza).
- "*Nonlinear and Statistical Physics Applied to Social, Biological and Technological Systems*". Ministry of Economy and Competitiveness (MINECO), Spain. 2015-2017. Co-PI. €185,000 .
- "*Mathematical framework for multiplex networks (PLEXMATH)*". European Union. Project 317614 under call FP7-ICT-2011-8. 2012-2015. PI. €1,520,540 (including €350,000 to the

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- "*Foundational Research on multilevel complex networks and systems (MULTIPLEX)*". European Union. Project 317532 under call FP7-ICT-2011-8. 2012-2016. PI. €5,100,000 (including €325,000 to the University of Zaragoza).
- "*A Model for the Identification of Unique Clients and Influential Users of Mobile Phones*". Project Granted by Applied Advanced Analytics. 2011. PI. 20.400 €.
- "*Urban Mobility at Zaragoza*". Institute BIFI. PI. 6.400 €.
- "*Networks, Biophysics and Nonlinear Science*". Ministry of Science and Innovation. (MICINN) Project Number: FIS2011-25167. 2012-2014. Co-PI. 259.000 €.
- "*Structure and Dynamics of Natural and Manmade Complex Systems*". Government of Aragon, DGA. Project number FMI22/10. 2011. PI. 9.300 €.
- "*Thematic Network: Dynamics and Synchronization in Networks*". Ministry of Science and Innovation. (MICINN) Project Number: FIS2010-09832-E. 2010-2011. PI of Zaragoza node. 12.000 €.
- "*Tackling Complexity in Physical and Biological Systems: A Computational Approach*". Ministry of Science and Innovation. (MICINN) Project Number: FIS2009-13364-C02-01/FIS. 2010-2012. Co-PI. 86.000 €.
- "*Networks: A Framework for Cross-Disciplinary Applications*". Ministry of Science and Innovation, DGA and University of Zaragoza. 2010. PI. 9.500 €.
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- "*Physical Models of Many Body Systems: Applications in Geophysics*". DGICYT Grant (Project Number. BFM 2002-01798). 2003-2005. Co-PI. 36.000 €.

PUBLICATIONS My scientific production amounts to 285+ peer-reviewed publications with a total of 47300+ and h-index=82 (Google Scholar, as of August 2023); and 28750+ citations and h=67 (Clarivate WoS, as of November 2023). Relevant contributions include journals like **Physics Reports,**

Nature Physics, Nature Communications, Nature Human Behaviour, Proc. Nat. Acad. Sci. USA, Phys. Rev. Lett., Phys. Rev. X, Science Advances, etc. Citation record can be found **here**.

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71. J. Poncela, J. Gomez-Gardenes, L.M. Floría, A. Sánchez and Y. Moreno, "Complex Cooperative Networks from Evolutionary Preferential Attachment", **PLoS ONE**, 3, e2449 (2008).

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65. J. Gomez-Gardenes, Y. Moreno, and A. Arenas, "Paths to Synchronization on Complex Networks", **Physical Review Letters**, 98, 034101 (2007).

64. M. Nekovee, Y. Moreno, G. Bianconi, and M. Marsili, "Theory of Rumor Spreading in Complex Social Networks", **Physica A** 374, 457 (2007).

63. R. Lopez-Ruiz, Y. Moreno, S. Boccaletti, D.-U. Hwang, A. F. Pacheco, "Awaking and Sleeping a Complex Network", **Neural Networks** 20, 102 (2007). 137. J. Gomez-Gardenes and Y. Moreno, "From Scale-Free to Erdos-Renyi Networks", **Physical Review E**, 73, 056124 (2006).

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58. P. Echenique, J. Gomez-Gardenes, and Y. Moreno, "Dynamics of Jamming Transitions in Complex Networks", **Europhysics Letters**, 71, 325 (2005).

57. P. Echenique, J. Gomez-Gardenes, Y. Moreno, and A. Vazquez, "Distance-d Covering Problems in Scale-Free Networks with Degree Correlations", **Physical Review E**, 71, 035102(R) (2005).

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54. J. Gomez-Gardenes, Y. Moreno, and L. M. Floria, "Michaelis-Menten Dynamics in Complex Heterogeneous Networks", **Physica A** 352, 265-81 (2005).

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51. Y. Moreno, and A. F. Pacheco "Synchronization of Kuramoto Oscillators in Scale-Free Networks", **Europhysics Letters**, 68, 603 (2004).

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47. Y. Moreno, J. B. Gomez, A. F. Pacheco, "Epidemic Incidence in Correlated Complex Networks", **Physical Review E**, 68, 035103(R) (2003).

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BOOK CHAPTERS

23. Alain Barrat, Guilherme Ferraz de Arruda, Iacopo Iacopini, Yamir Moreno, “Social contagion on higher-order structures”, Book Chapter in **Higher-Order Systems. Understanding Complex Systems**, 329-346. Edited by Battiston, F., Petri, G. Springer (2022).

22. Unai Alvarez-Rodriguez, Federico Battiston, Guilherme Ferraz de Arruda, Yamir Moreno, Matjaz Perc, Vito Latora, “Collective games on hypergraphs”, Book Chapter in **Higher-Order Systems. Understanding Complex Systems**, 377-388. Edited by Battiston, F., Petri, G. Springer (2022).

21. J. Borge-Holthoefer, Y. Moreno, and T. Yasseri (Editors) **"At the Crossroads: Lessons and Challenges in Computational Social Science"**, Frontiers Research Topic Ebook, Lausanne: Frontiers Media, ISBN: 9782889450213 (2016).

20. E. Cozzo, G. F. de Arruda, F. A. Rodriguez, and Y. Moreno, "Multilayer networks: metrics and spectral properties", Chapter contribution to the book **"Interconnected networks"**, edited by F. Schweitzer and A. Garas, Springer, ISBN 978-3-319-23947-7 (2016).

19. S. González-Bailón, J. Borge-Holthoefer and Y. Moreno, "Online Networks and the Diffusion of Protest", Chapter contribution to **Analytical Sociology: Norms, Actions and Networks**, 2014.

18. J. Borge-Holthoefer, S. González-Bailón, A. Rivero, and Y. Moreno, "The Spanish Indignados Movement: Time dynamics, geographical distribution, and recruitment mechanisms", Chapter contribution to **Online Collective Action**, 2014.

17. E. Cozzo, J. Sanz, and Y. Moreno, "Dynamics of Biomolecular Networks". Chapter contribution to the **Encyclopedia of Molecular Cell Biology and Molecular Medicine**. (Edited by Robert A. Meyers), ISBN: 978-3-527-32607-5 (Wiley-VCH, Weinheim, 2012).

16. J. Poncela, J. Gomez-Gardenes, L. M. Floría, and Y. Moreno, "Growing Networks Driven by the Evolutionary Prisoner?s Dilemma Game". Chapter contribution to the **Handbook of Optimization in Complex Networks. Springer Optimization and Its Applications**, Vol. 57, Thai, My T.; Pardalos, Panos M. (Eds.) 2012.

15. S. Meloni, A. Arenas, S. Gómez, J. Borge-Holthoefer, and Y. Moreno, "Modeling Epidemic Spreading in Complex Networks: Concurrency and Traffic". Chapter contribution to the **Handbook of Optimization in Complex Networks Springer Optimization and Its Applications**, Vol. 57, Thai, My T.; Pardalos, Panos M. (Eds.) 2012.

14. A. H. Rodríguez, and Y. Moreno, "Dyadic and Social Influence on the Axelrod Model with Clever Mass Media", Chapter contribution to the collection **"Mass Media: Coverage, Objectivity and Changes"**, Nova Publisher, (2010).

13. **"Handbook on Biological Networks"**. Editors: S. Boccaletti, V. Latora and Y. Moreno, World Scientific, Singapore. 450pp (approx.), December 2009. ISBN 978-981-283-879-7.

12. Y. Moreno, "Complex Network Modeling: A New Approach to Neurosciences", Chapter contribution in: **"Coordinated Activity in the Brain: Measurements and Relevance to Brain Function and Behavior"**, Springer Verlag, (2009). Hardcover (ISBN: 978-0-387-93796-0).

11. R. Sinatra, J. Gomez-Gardenes, Y. Moreno, L.M. Floría, D. Condorelli and V. Latora, "Structural and Dynamical Properties of Cellular Regulatory Networks", in **"Statistical Mechanics of Cellular Systems and Processes"**, Edited by M.H. Zaman, Cambridge University Press, (2009). Hardback (ISBN-13: 9780521886086).

10. L. M. Floría, Y. Moreno, and J. Gomez-Gardenes, "The Modeling of Biological Networks", **Physics of Complex Systems and Life Sciences**, Book Chapter, Edited by M. A. F. Sanjuan, (Research Signpost, 2007).

Other Publications

9. R. Criado, M. Romance, J. Gomez-Gardenes, and Y. Moreno, "Editorial to the Special Issue", **International Journal of Bifurcation and Chaos** 22, 1202005 (2012).
8. S. Havlin, M. Nekovee, and Y. Moreno, "Focus on Complex Networked Systems: Theory and Application", **New Journal of Physics**, 9, (2007) (Editorial to the Focus Issue).
7. J. Clemente, Y. Moreno, J. F. Saenz and A. Velazquez, "From Physics to Biology: The interface between Experiment and Computation" (Editorial paper introducing the AIP Volume). **AIP Conference Proceedings**, 851, 1 (2006).
6. M. Nekovee and Y. Moreno, "Rumor-like Information Dissemination in Complex Computer Networks", **Proceedings from the Fifth International Conference on Complex Systems**, Springer Complexity Series, (2009).
5. Y. Moreno, "The Emergence of Collective Behavior in Complex Topologies", **Proceedings of the Conference NET-WORKS'07**, 97 (2007).
4. Y. Moreno, L. M. Floria and J. Gomez-Gardenes "Current Trends in the Modeling of Biological Networks", **AIP Conference Proceedings**, 851, 150 (2006).
3. O. Sotolongo, Y. Moreno, E. López-Pages, F. Barreras. "Fractal Viewpoint in Transition to Scaling in Atomization", **Proceedings of the Joint Meeting of the Sections of The Combustion Institute**, Madeira, Spain. 1996.
2. J. J. Llovera, Y. Moreno, A. Sotto. "Bubble Nucleation in Water/Gasoil Emulsions. The Influence of Water Fraction and the Surfactant Fraction", **Proceedings of III Caribbean Congress on Fluid Dynamics and III Latin-American Symposium on Fluid Mechanics**, Caracas, Venezuela, 1995.
1. Y. Moreno, J. J. Llovera, O. Sotolongo. "Droplet Size Distribution Function in W/O Emulsions", **Proceedings of III Caribbean Congress on Fluid Dynamics and III Latin-American Symposium on Fluid Mechanics**, Caracas, Venezuela, 1995.

Advising and Mentoring

- **Ph.D. Students**
  - Junfeng Fan, started November 2023.
  - Pietro Traversa. Started October 2022.
  - Ariadna Fosch. Started September 2021.
  - Mario Tovar. Started September 2019.
  - Alfonso de Miguel. Started September 2019.
  - Claudia Martinez, (co-advised with A. Bermudez). PhD at Benemerita Universidad Autonoma de Puebla, Mexico. Date of Dissertation: April 2022.
  - Dan Lu. Date of Dissertation: December, 2021. Mark: Highest mark of "Apto with proposition for Cum Laude".
  - Claudia Payrato. Date of Dissertation: December, 2020. Mark: Highest mark of "Apto".
  - Felipe Cardoso. Date of Dissertation: December, 2020. Mark: Highest mark of "Apto with proposition for Cum Laude".
  - Alberto Aleta. Date of Dissertation: December, 2019. Mark: Highest mark of "Apto with proposition for Cum Laude".

- Sergio Arregui. Date of Dissertation: November, 2018. Mark: Highest mark of "Apto with proposition for Cum Laude".
- Guilherme Ferraz de Arruda, University of Sao Paolo at Sao Carlos. Date of Dissertation: December, 2017.
- Pablo Piedrahita, Date of Dissertation: September, 2017. Mark: Highest mark of "Apto with proposition for Cum Laude".
- Emanuele Cozzo, Date of Dissertation: February 2, 2016. Mark: Highest mark of "Apto with proposition for Cum Laude". Currently, he is a postdoctoral fellow at Universitat de Barcelona, Spain.
- Joaquín Sanz, Date of Dissertation: October 22, 2014. Mark: Highest mark of "Apto with proposition for Cum Laude". After a postdoctoral stay at the L. Barreiro Lab, CHU Sainte-Justine, Cote Sainte-Catherine, Montreal, Québec, Canada, he is currently back at the Institute for Biocomputation and Physics of Complex Systems at the University of Zaragoza as a Senior Ramón y Cajal Researcher (tenure-track position).
- Raquel álvarez, Date of Dissertation: July 11, 2014. Mark: Highest mark of "Apto with proposition for Cum Laude". Currently, she is a software developer at The Rutherford Appleton Laboratory, United Kingdom.
- Carlos Gracia Lázaro, Date of Dissertation: November 27, 2012. Mark: Highest mark of "Apto with proposition for Cum Laude". Currently, he is a Postdoctoral fellow in our group (COSNET Lab, http://cosnet.bifi.es) at the University of Zaragoza, Spain.
- Sandro Meloni, Date of Dissertation: May 2011. (co-supervised with S. Panzieri, University of Rome III). Currently he is a tenure research scientist of the Spanish National Research Council at IFISC, in the Balearic Islands, Spain.
- Julia Poncela Casasnovas, "Evolutionary Games in Complex Topologies: Interplay between Structure and Dynamics". Date of Dissertation: October 20, 2010. Mark: Summa Cum Laude. She was a Postdoctoral fellow in the group of Prof. Luis N. Amaral, Northwestern University, USA (2010-2014). Currently she is at Universitat Rovira I Virgili, Tarragona, Spain.
- Pablo Echenique Robba, "A Bottom-Up Physical Approach from Small Peptides to Proteins. Methods and ab-Initio Potentials". Date of Dissertation: December 15, 2006. Mark: Summa Cum Laude. Currently he is a tenure research scientist of the Spanish National Research Council.
- Jesus Gomez-Gardenes, "Complex Systems: Nonlinearity and Structural Complexity in Spatially Extended and Discrete Systems". Date of Dissertation: December 14, 2006. Mark: Summa Cum Laude and award to the best PhD Thesis of the University of Zaragoza. Currently he associate professor of Physics at the University of Zaragoza.

- **Supported Postdocs, PhD Students and other Personnel.**
  - Marco Fernández Da Silva, MSc student at UZ, September 2023-.
  - Dr. Kleber Oliveira, PhD at University of Limerick. CENTAI Institute, Turin, October 2022-.
  - MSc. Pietro Traversa, PhD student at University of Zaragoza and CENTAI Institute, Turin, October 2022-.
  - Dr. Henrique Ferraz de Arruda, PhD at USP Sao Carlos, Brazil. July 2021-
  - MSc. Ariadna Fosch, PhD student at University of Zaragoza. Jul 2021-
  - Dr. Alberto Aleta, PhD at University of Zaragoza. Jan 2020-Nov 2022.
  - MSc. Claudia Payrato, PhD student at University of Cergy-Pontoise and University of Zaragoza. Feb 2020- Sept 2020.
  - MSc. Mario Tovar, PhD student at University of Zaragoza. Dec 2018- Sept 2019.
  - Dr. Lucas Jeub, PhD Oxford University. May 2019-June 2020.
  - Dr. Guilherme F. de Arruda, PhD USP at Sao Carlos, Brazil. April 2018-April 2022.
  - Dr. Agnieszka Czaplicka, PhD Warsaw University. March 2017- March 2018.
  - M.Sc. Felipe M. Cardoso, PhD student. Nov 2016- .
  - Dr. Emanuele Cozzo, PhD at the University of Zaragoza. March 2016-March 2017.

- Dr. Alejandro Rivero, Ph.D at the University of Zaragoza. 06/2013-12/2013.
- Dr. Carlos Gracia-Lázaro, PhD at the University of Zaragoza. 12/2012-
- Dr. Javier Borge-Holthoefer, PhD at the University of Tarragona. 09/2010-112013.
- Dr. Sandro Meloni, PhD at the University of Rome III. 02/2011-03/2014
- Sergio Arregui. 09/2013- 09/2014.
- Alfredo Ferrer. 01/2013-03/2013, and 01/2016-12/2016.
- Pablo Piedrahita. 09/2012-12/2012.
- Alessio Cardillo 02/2013-02/2014.

- **Hosted and Fully/Partially Supported Visiting Scientists and Students.**
  - PhD Student, Junfeng Fan, School of Computer Science and Engineering, Tianjin University of Technology, P.R. China. Nov 2023-2027.
  - PhD Student, Ru Zheng. School of Mathematics and Statistics, Central South University, P.R. China. Oct 2023-Oct 2024.
  - PhD Student, Jinyang Li. College of Transportation Engineering, Tongji University, China. Feb 2023-August 2024.
  - PhD Student, Haiping Liu. China University of Geosciences, Beijing. Oct 2022-Oct 2023.
  - PhD Student, Yikang Lu. Yunnan University of Finance and Economics, Kunming City, China. Oct 2022-Oct 2023.
  - MSc Student, Elena Candellone. Politecnico di Torino, Turin. Hosted at ISI Foundation. February-August 2022.
  - MSc Student, Pietro Traversa. Politecnico di Torino, Turin. Hosted at ISI Foundation. February-August 2022.
  - PhD Student, Yanan Wang. School of Economics and Management, Beihang University (BUAA), China. June 2022-June 2023.
  - PhD Student, Yajie Qi. China University of Geosciences, Beijing. Oct 2021-Sept 2022.
  - PhD Student, Tiago Martinelli. USP at Sao Carlos, Brazil. Oct 2021-Sept 2022.
  - PhD Student, Marta Tuninetti. ISI Foundation, Turin, Italy. Sept 2019-February 2020.
  - Dr. Henrique Ferraz de Arruda, USP at Sao Carlos, Brazil. Oct 2019-Oct 2020.
  - PhD Student, Claudia Martinez, Benemérita Universidad Autónoma de Puebla, Mexico. Sept 2019-Sept 2020.
  - PhD Student, Paulo Cesar Ventura da Silva, USP at Sao Carlos, Brazil. Sept 2019-Sept 2020.
  - Dr. Thomas Peron, USP at Sao Carlos, Brazil. Nov 2018-Nov 2019.
  - Dr. Chengyi Xia, Tianjin University, China. Nov 2018-May 2019.
  - MSc. Francesca Priante, University of Padua. March 2018- September 2018.
  - PhD Student Ana Lucia Schmidt, IMT Lucca. March 2017-September 2017.
  - Graduate Student, Ana Paula dos Reis, University of Sao Paolo, Brazil. December/2016-March/ 2017.
  - PhD Student Wei Chen, School of Electro-Mechanical Engineering, Xidian University, Xi'an 710071, China. March 2016-March 2017.
  - Dr. Alexis Hernandez. University of Rio de Janeiro, Brazil. June 2016-June 2016.
  - PhD Student, Guilherme F. de Arruda, University of Sao Paolo, Brazil. July/2015-July/ 2016
  - M.Sc. Bianca Oe, State University of Campinas, Brazil. Jan 2016-July 2016.
  - M.Sc. Felipe Cardoso, State University of Campinas, Brazil. Sept 2015-Feb 2016.
  - M.Sc. Quantong Guo, Beihang University, Beijin, China. Sept 2014-Sept 2015.
  - M.Sc. Francesco Chiaravalloti, University of Calabria. Nov. 2013-May 2014.
  - Dr. Chengyi Xia, Tianjin University, China. Sept 2011-Aug 2012.
  - Dr. Arezky Hernández, Universidad Autónoma de la Ciudad de Mexico, Mexico. May-Sept 2012.
  - M.Sc. Zhen Wang, Hong Kong Baptist University. June-Sept 2012.
  - M.Sc. Christian Sanabria, Cinvestav, Mexico City, Mexico. January 2012-June 2012.

- **Undergraduate/Graduate Students**
  - Master Degree work:
    - Marco Fernández da Silva, Elena Candellone, Pietro Traversa, Ariadna Fosch, Mario Tovar, Laura Solanas, Miguel Baez, Francesca Priante, Alberto Aleta (with honors), Julia Poncela, Joaquín Sanz, Carlos Gracia Lazaro, Pablo Piedrahita, Luis Hueso.
  - Work leading to Graduation (Laurea):
    - Marco Fernández da Silva, Marta Buetas, Marta Alvarez, David Muñoz, Silvia Muñoz, Alfonso Yubero, Alicia Lou, Miguel Tarancón, Hector Garcia (with honors), Mauro Mobila, Alberto Aleta, Fernando Cid (with honors), Manuel Campillo, Luis Fernandez Lafuerza, Jesus Gomez-Gardeñes, Roberta Sinatra (Italy), Elio Profumo (Italy).

TEACHING EXPERIENCE

- **University of Zaragoza**
  - "Systems Biology", Course of the Master in Quantitative Biology. Winter of the Academic Years 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024.
  - "Complex Networks", Course of the Master in Physics. Spring of the Academic Years 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024.
  - "Computational Physics", Undergraduate Course. Spring-Summer of the Academic Years 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023, 2023-2024.
  - "Chaos and Complex Systems", Undergraduate Course. Spring of the years 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012.
  - "Complex Systems", Course at the Master and PhD Program in Physics. Fall 2007, 2008, 2009, 2010, 2011, 2012.
- **Theoretical Physics Lab, University of Cergy-Pontoise, France.**
  - "Structure and Dynamics of Complex Network", Master Course within the Ph.D. Program, 2011.
- **Department of Informatics and Automatics, University of Rome III, Italy.**
  - "Structure and Dynamics of Complex Network", Summer Course within the Ph.D. Program, 2008.
- **Advanced School of Catania (Scuola Superiore di Catania), Italy**
  - "Complex Networks", Undergraduate Course. Fall 2007.
- **Technological University of Havana, Havana, Cuba.**
  - "Atomic Physics", Undergraduate Course for Chemical Engineers. Yearlong course, 1996-1997.
  - "Electricity and Magnetism", Undergraduate Course for Chemical Engineers. Yearlong course, 1995-1996.
  - "Molecular Physics and Thermodynamics", Undergraduate Course for Chemical Engineers. Yearlong course, 1994-1995.
  - "Mechanics", Undergraduate Course for Chemical Engineers. Yearlong course, 1993-1994.