Part A. PERSONAL INFORMATION

Date		06-04-2017

Name	Juan Soler		
DNI/NIE/Passport		Nacionality	Spanish
Researcher Identification Number	Researcher ID	L-4627-2014	
	Código Orcid	0000-0002-8683-5994	

A.1. Current professional status

Organism	Universidad de Granada	
Lab/Institute	Matemática Aplicada. Facultad de Ciencias	
Address	Avda, Fuentenueva s/n. 10871-Granada. Spain	
Phone	+34 958243287	email	jsoler@ugr,es
Position	University Full Professor	
Cod. UNESCO	120220, 221305, 220504, 240499, 221214	
Key words	Biomathematics, Nonlinear PDEs, Kinetic Theory, Hydrodynamic Limits, Fluid Mechanics, Kinetic and Relativistic Theory	

A.2. Academic training *(title, institution, date)*

Bachelor's Degree / PhD	*University*	*Year*
Degree in Mathematics	Universidad de Granada	1983
DEA. Lab Analyse Numerique	Université Pierre et Marie Curie	1985
PhD in Mathematics	Universidad de Granada	1986

A.3. General indicators of the quality of scientific production

- Number of PhDI theses supervised: 10
- Total citations: 1254 (Web of Science), 1882 (Google Scholar)
- Total of publications in the first quartile (Q1): 68 (from 78= 87.2%)
- H-Index: 22 (Scopus/Web of Science), 28 (Google Scholar)
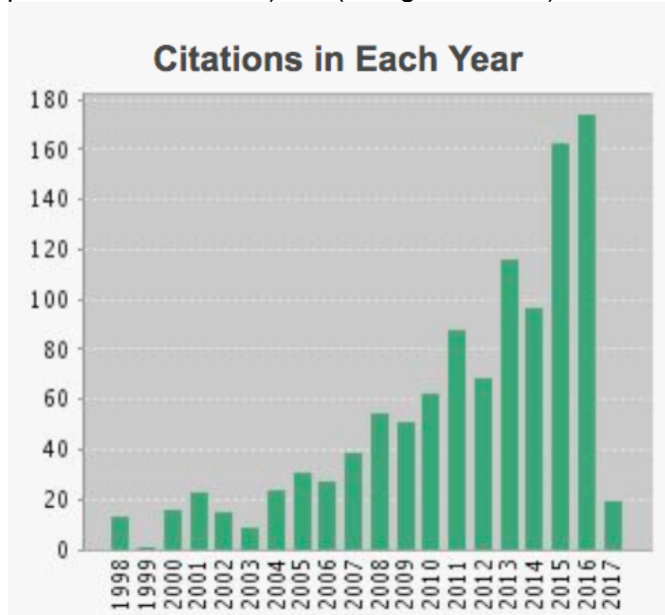
Part B. CURRICULUM FREE SUMMARY

Juan Soler began his research within the team of his PhD. advisor Pierre-Arnaud Raviart (U. Pierre et Marie Curie), analyzing some problems in the framework of fluid-mechanical equations. His proof that a vector measure such as a vortex filament is admissible in the functional context of the Navier-Stokes equation was pioneering in the field. Since that time, Euler and Navier-stokes equations are recurring topics in his research career, along which he has had the opportunity to collaborate with Amable Liñán and George-Henri Cottet, among others..

From a thematic point of view, the study of singularities is a constant in his trajectory: "Every interesting fact takes place at interfaces, which are often singular". In the early 90s,

he came into the world of kinetic equations with an original approach that has persisted in his later work, consisting of using in an integrated way techniques and ideas stemming from several disciplines such as fluid mechanics, classical or relativistic kinetic equations, quantum mechanics, biomathematics or social sciences. Among the results of this approach, we can outline the description of the asymptotic behavior and qualitative properties of kinetic equations, the study of variational problems arising in the investigation of orbital stability of gravitating galaxies (Vlasov-Poisson or Vlasov- Einstein models), the behavior of nonlinear Schrödinger equations or the analysis of coagulation-fragmentation models. Luis L. Bonilla, Isabelle Catto, Jean Dolbeault, Thierry Goudon, Pierre-Emmanuel Jabin, Peter Markowich, Christian Ringhofer, Giuseppe Toscani or Juan L. Vazquez have been some of his collaborators in this research.

The pioneering ideas that opened the way to the mathematical formalization of the hydrodynamic low-field (parabolic) and high-field (hyperbolic) limits arose from his collaborations with Frédéric Poupaud. This description propels the relations between the macroscopic models and their microscopic or kinetic counterpart. Later, these ideas were incorporated, in collaboration with Nicola Bellomo, to multicellular interaction models and growth in order to deduce hyperbolic or dispersive (but not diffusive) models. His approach to flux-saturated mechanisms follows the aim of limiting the diffusive processes in biomathematics. Some of his collaborators in this field have been Juan Campos, José M. Mazón and Vicent Caselles.

From his recent research, it is worth highlighting the relevant role that he attributes, on one side, to the predictive capability of a model as a cornerstone for its mathematical viability, and on the other side to multiple interactions versus binary interactions in order to detect and understand emerging processes in the collective behavior of species.

In 1998 he founded the program FISYMAT, widely recognized in postgraduate training nowadays, around which he organized BIOMAT, an international school that has been revealed as a benchmark in Biomathematics.

From his training work, a prominent school has emerged: José A. Carrillo, José L. López, Juan Nieto, Óscar Sánchez, José A. Cañizo, Juan Calvo and Pilar Guerrero.

He has coordinated 4 projects in Framework Programs (European Commission), besides his extensive experience in Spanish projects, and published more than 75 articles collected in ISI-Thompson. His "h" number is 22 (WoS) or 28 (Google Scholar). He is currently part of the editorial board of prestigious international publications: "Mathematical Models and Methods in the Applied Sciences", "EMS Surveys in Mathematical Sciences", AMS-RSME book series: Mathematical Surveys and Monographs, University Lecture Series, Graduate Studies in Mathematics.

Lines of research:
- Biomathematics. Mathematics and life sciences: models of development
- Cell communication and tumor growth
- Particle/fluid interaction: fragmentation and coagulation kernels
- Fluid mechanics: Euler and Navier-Stokes equations
- Transport equations: kinetic equations, Vlasov and Boltzmann systems, Fokker-Planck kernels. General Relativity
- Quantum mechanics: nonlinear Wigner and Schrödinger-type equations, semiconductor theory
- Discrete evolution models in kinetic and quantum-kinetic equations
- Asymptotic and hydrodynamic regimes

Part C. MOST RELEVANT MERITS

C.1. Publications (a selection)

- J. Calvo, J. Campos, V. Caselles, O. Sánchez, J. Soler, Qualitative behavior for flux-saturated mechanisms: traveling waves, waiting time and smoothing effects, J. Eur. Math. Soc. 19 (2017), 441-472.
- M. Verbeni, O. Sánchez, E. Mollica, I. Siegl-Cachedenier, A. Carleton, I. Guerrero, A. Ruiz i Altaba, J. Soler, Morphogenetic action through flux-limited spreading, Phys. Life Rev. 10, (2013), 457-475.

- J. Calvo, J. Campos, V. Caselles, O. Sánchez, J. Soler, Pattern formation in a flux limited reaction-diffusion equation of porous media type, Inventiones Mathematicae 206 (2016), 57-108.
- D. Poyato, J. Soler, Euler-type equations and commutators in singular and hyperbolic limits of kinetic Cucker-Smale models, *Math. Mod. Meth. Appl. Sci*, 27(6) (2017), 1089-1152.
- A. Enciso, D. Poyato, J. Soler, Stability results, almost global generalized Beltrami fields and applications to vortex structures in the Euler equations, to appear in *Comm. Math Phys.*
- J. Campos, J. Soler, Qualitative behavior and traveling waves for flux-saturated porous media equationsarising in optimal mass transportation, Nonlinear Analysis 137 (2016), 266-290, D.O.I. http://dx.doi.org/10.1016/j.na.2015.12.021
- M. Verbeni, O. Sánchez, E. Mollica, I. Siegl-Cachedenier, A. Carleton, I. Guerrero, A. Ruiz i Altaba, J. Soler, On flux-limited morphogenesis, Physics of Life Reviews 10 (2013), 495-497.
- F. Andreu, J. Calvo, J.M. Mazón, J. Soler, On a nonlinear flux-limited equation arising in the transport of morphogens, J. Differential Equations, 252 (2012), 5763-5813
- N Bellomo, A Bellouquid, J Nieto, J Soler, Multiscale biological tissue models and flux-limited chemotaxis for multicellular growing systems, Mathematical Models and Methods in Applied Sciences 20 (2010), 1179-1207.
- J Dolbeault, Ó Sánchez, J Soler, Asymptotic behaviour for the Vlasov-Poisson system in the stellar-dynamics case, Archive for Rational Mechanics and Analysis 171 (2004), 301-327
- S. Calogero. O. Sánchez. J. Soler, Asymptotic behavior and orbital stability of galactic dynamics in relativistic scalar gravity , Archive for Rational Mechanics and Analysis, 194 (2009), 743-773
- J. Campos, P. Guerrero, O. Sánchez, J. Soler, On the analysis of travelling waves to a nonlinear flux limited reaction-diffusion equation, Ann. I. Henri Poincaré, 30 (2013), 141-155,.
- N. Bellomo, J. Soler, On the mathematical theory of the dynamics of swarms viewed as complex Systems, Math. Mod. and Meth. in Appl. Sci., 22 (2012), 1140006 (29 páginas).
- A Arnold, JL López, PA Markowich, J Soler, An analysis of quantum Fokker-Planck models: A Wigner function approach, Rev. Mat Iberoamericana 20 (2004), 771-814
- N Bellomo, A Bellouquid, J Nieto, J Soler, Multicellular biological growing systems: Hyperbolic limits towards macroscopic description, Mathematical Models and Methods in Applied Sciences 17 (2007), 1675-1692
- Ó Sánchez, J Soler, Orbital stability for polytropic galaxies, Annales de l'Institut Henri Poincare (C) Non Linear Analysis 23 (2006), 781-802
- J, Nieto, F. Poupaud, J. Soler, High-field limit for the Vlasov-Poisson-Fokker-Planck system, Archive for Rational Mechanics and Analysis 158 (2001), 29-59.
- Ó Sánchez, J Soler, Long-time dynamics of the Schrodinger-Poisson-Slater system, Journal of Statistical Physics 114 (2004), 179-204.
- F. Poupaud, J. Soler, Parabolic limit and stability of the Vlasov-Fokker-Planck system Mathematical Models & Methods In Applied Sciences 10 (2000) 1027-1045.
- A. Arnold, J.L. Lopez, P.A. Markowich, J. Soler, An analysis of quantum Fokker-Planck models: A Wigner function approach, Revista Matematica Iberoamericana 20 (2004), 771-814.
- L.L. Bonilla, J. Soler, High-field limit of the Vlasov-Poisson-Fokker-Planck system: A comparison of different perturbation methods, Mathematical Models & Methods In Applied Sciences 11 (2001), 1457-1468.
- J.A. Carrillo, J. Soler, On the Initial-Value Problem for the Vlasov-Poisson-Fokker-Planck System with Initial Data in Lp Spaces, Mathematical Methods In The Applied Sciences 18 (1995), 825-839.
- Th. Goudon, J. Nieto, F. Poupaud, J. Soler, Multidimensional high-field limit of the electrostatic Vlasov-Poisson-Fokker-Planck system, Journal of Differential Equations 213 (2005), 418-442.
- L.L. Bonilla, J.A. Carrillo, J. Soler, Asymptotic behavior of an initial-boundary value problem for the Vlasov-Poisson-Fokker-Planck system, SIAM Journal on Applied Mathematics 57 (1997), 1343-1372.

- J.A. Carrillo, J. Soler, J.L. Vázquez, Asymptotic behaviour and self-similarity for the three dimensional Vlasov-Poisson-Fokker-Planck system, Journal of Functional Analysis 141 (1996), 99-132.
- N. Bellomo, A Bellouquid, J Nieto, J Soler, On the Asymptotic Theory from Microscopic to Macroscopic Growing Tissue Models: An Overview with Perspectives, Mathematical Models & Methods in Applied Sciences 22 (2012) nº1130001.
- N. Bellomo, A Bellouquid, J Nieto, J Soler, Complexity and mathematical tools toward the modelling of multicellular growing Systems, Mathematical and Computer Modelling 51 (2010), 441-451.
- J.A. Carrillo, J. Soler, On the Vlasov-Poisson-Fokker-Planck equations with measures in Morrey spaces as initial data, Journal of Mathematical Analysis and Applications (1997) 475-495.
- J.L. López, J. Soler, Asymptotic behavior to the 3-D Schrodinger/Hartree-Poisson and Wigner-Poisson Systems, Mathematical Models & Methods In Applied Sciences 10 (2000),   923-943.
- L.L. Bonilla, C Pérez Vicente, F. Ritort, J. Soler, Exactly solvable phase oscillator models with synchronization dynamics, Physical Review Letters 81 (1998) 3643-3646.
- J. Calvo, J. Mazón, J. Soler, M.- Verbeni, Qualitative Properties of the Solutions of a Nonlinear Flux-Limited Equation Arising in the Transport of Morphogens, Mathematical Models & Methods In Applied Sciences 21 (2011), 893-937.
- E. Arriola, J. Soler, A variational approach to the Schrodinger-Poisson system: Asymptotic behaviour, breathers, and stability, Journal of Statistical Physics 103 (2001), 1069-1106.
- N. Bellomo, D. Knopoff, J. Soler, On the Difficult Interplay Between Life, "Complexity", and Mathematical Sciences, Mathematical Models & Methods in Applied Sciences 23 (2013),   1861-1913.
- O. Bokanowski, J.L. Lopez, J. Soler, On an exchange interaction model for quantum transport: The Schrodinger-Poisson-Slater system, Mathematical Models & Methods In Applied Sciences 13 (2003), 1397-1412.
- L.L. Bonilla, O. Sanchez, J. Soler, Nonlinear stochastic discrete drift-diffusion theory of charge fluctuations and domain relocation times in semiconductor superlattices, Physical Review B 65   (2002), nº 195308.
- Th. Goudon, O. Sanchez, J. Soler, L.L. Bonilla, Low-field limit for a nonlinear discrete drift-diffusion model arising in semiconductor superlattices theory, SIAM Journal on Applied Mathematics 64 (2004), 1526-1549.
- G.H. Cottet, J. Soler, 3-Dimensional Navier-Stokes Equations For Singular Filament Initial Data, Journal of Differential Equations 74 (1988), 234-253.
- L.L. Bonilla, J.A. Carrillo, J. Soler, H-theorem for electrostatic or self-gravitating Vlasov-Poisson-Fokker-Planck Systems, Physics Letters A 212 (1996), 55-59.
- J.L. López, J. Soler, G. Toscani, Time rescaling and asymptotic behavior of some fourth-order degenerate diffusion equations, Computers & Mathematics with Applications 43 (2002), 721-736.
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- P.E. Jabin, J. Soler, A kinetic description of particle fragmentation, Mathematical Models & Methods in Applied Sciences 16 (2006), 933-948.
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- N. Bellomo, A Bellouquid, J Nieto, J Soler, Modeling Chemotaxis From L-2-Closure Moments in Kinetic Theory of Active Particles, Discrete and Continuous Dynamical Systems-Series B 18 (2013), 847-863.
- J. Calvo, E. Florido, O. Sanchez, E. Battaner, J. Soler, On a unified theory of cold dark matter halos based on collisionless Boltzmann-Poisson polytropes, Physica A-Statistical Mechanics and its Applications 388 (2009), 2321-2330.

- P. Bechouche, J. Nieto, E. Ruiz Arriola, J. Soler, On the time evolution of the mean-field polaron, JOURNAL OF MATHEMATICAL PHYSICS 41 (2000), 4293-4312.
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- S. Calogero, J. Calvo, O. Sanchez, J. Soler, Dispersive Behavior in Galactic Dynamics, Discrete and Continuous Dynamical Systems 14 (2010), 1-16.
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- L.L. Bonilla, C Pérez Vicente, F. Ritort, J. Soler, Exact solutions and dynamics of globally coupled oscillators, Mathematical Models & Methods in Applied Sciences 16 (2006), 1919-1959.
- P. Bechouche, F. Poupaud, J. Soler, Quantum transport and Boltzmann operators, Journal of Statistical Physics 122 (2006), 417-436.
- O. Sánchez, J. Soler, Asymptotic decay estimates for the repulsive Schrodinger-Poisson system, Mathematical Methods in the Applied Sciences 27 (2004). 371-380.
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- S. Calogero, J. Calvo, O. Sanchez, J. Soler, Virial inequalities for steady states in relativistic galactic dynamics, NONLINEARITY (2010), 1851-1871.
- J.A. Carrillo, J. Soler, J.L. Vázquez, Asymptotic-Behavior for the Frictionless Vlasov-Poisson-Fokker-Planck System, Comptes Rendus de l'Academie des Sciences Serie I-Mathematique 321 (1995), 1195-1200.
- J. Soler, On Cubature with a Minimal Number of Lines, Journal of Computational and Applied Mathematics 19 (1987), 223-230.
- J. Calvo, J. Nieto, J. Soler, M.O. Vásquez, On a Dispersive Model for the Unzipping of Double-Stranded DNA Molecules, Mathematical Models & Methods In Applied Sciences 24 (2014), 495-511.
- Catto, J. Dolbeault, O. Sanchez, J. Soler, Existence of Steady States for the Maxwell-Schrodinger-Poisson System: Exploring the Applicability of the Concentration-Compactness Principle, Mathematical Models & Methods In Applied Sciences 23 (2013), 1915-1938.
- P.E. Jabin, J. Soler, A Coupled Boltzmann and Navier-Stokes Fragmentation Model Induced by a Fluid-Particle-Spring Interaction, SIAM Multiscale Modeling & Simulation 8 (2010), 1244-1268.
- J.A. Carrillo, J. Soler, On the evolution of an angle in a vortex patch, Journal of Nonlinear Science 10 (2000), 23-47.
- J. Soler, L-Infinity Stability for Weak Solutions of the Navier-Stokes Equations In R(3) with Singular Initial Data in Morrey Spaces, Journal of Mathematical Analysis and Applications 187 (1994), 513-525.
- N. Bellomo, A Bellouquid, J Nieto, J Soler, On The Multiscale Modeling of Vehicular Traffic: From Kinetic to Hydrodynamics, Discrete and Continuous Dynamical Systems 19 (2014), 1869-1888.
- A. Bellouquid, J. Calvo, J. Nieto, J. Soler, Hyperbolic Versus Parabolic Asymptotics in Kinetic Theory Toward Fluid Dynamic Models, SIAM Journal on Applied Mathematics, 73 (2013), 1327-1346.
- Bellouquid, J. Calvo, J. Nieto, J. Soler, On the Relativistic BGK-Boltzmann Model: Asymptotics and Hydrodynamics, JOURNAL OF STATISTICAL PHYSICS, 149 (2012), 284-316.

- J. Calvo, E. Florido, O. Sanchez, O.; et al., Cold Dark Matter Halos Based on Collisionless Boltzmann-Poisson Polytropes, Book Series: Astrophysics and Space Science Proceedings   Pages: 263-263, 2010
- O. Sanchez, L.L. Bonilla, J. Soler, Random domain-relocation times in semiconductor superlattices: A stochastic discrete drift-diffusion approach, Progress In Industrial Mathematics at ECMI 2002 Book Series: Mathematics in Industry   Volume: 5 (2004) Pages: 159-164.
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- J. Soler, J.A. Carrillo, On the evolution of a singular vortex patch in a two-dimensional incompressible fluid flow, Computer Physics Communications, 121 (1999), 244-250.
- J. Soler, J.A. Carrillo, On functional solutions for the three dimensional kinetic equations of Vlasov-type with bounded measures as initial data. Nonlinear Analysis-Theory Methods & Applications, 32 (1998), 235-259.
- J. Soler, On uniqueness of solutions for the 2-D Euler equations, Zeitschrift fur Angewandte Mathematik und Mechanik 76 (1996),105-108.
- L.L. Bonilla, J.A. Carrillo, J. Soler, Asymptotic behaviour of the Vlasov-Poisson-Fokker-Planck system in bounded domains, Zeitschrift fur Angewandte Mathematik und Mechanik 76 (1996), 485-486.
- J. Soler, Vortex Filament Method, IMA Journal of Numerical Analysis,10 (1990), 75-102.

C.2. Projects (Brief summary)

1) Title of the project: eVACUATE: A holistic, scenario-independent, situation-awareness and guidance system for sustaining the Active Evacuation Route for large crowds, Contract number 313161. Source of Funding: European Union
Duration, from: 01/04/2013 until 01/04/2017. Grant amount: 1.250.000,00€
Research Coordinator: Nicola Bellomo and Juan Soler

3) Title of the project: Dinámica evolutiva, teoría cinética y descripciones hidrodinámicas en ciencias de la vida: MTM2014-53406-R. Source of Funding: MINECO: Ministerio de Economía y Competitividad (Proyectos de I+D+I: Retos de investigación). Duration, from: 01/01/15 until 31/12/18. Grant amount: 142.054,00€. Research Coordinator: Juan Soler. Team 6 members.

3) Title of the project: Ecuaciones de evolución para sistemas complejos en ciencias de la vida y teoría cinética: MTM2011-23384. Source of Funding: Ministerio de Economía e Innovación. Duration, from: 01/01/12 until 31/12/14. Grant amount: 127.050,00€. Research Coordinator: Juan Soler. Team 7 members.

4) Title of the project: BIOMAT: Modelos matemáticos en vías de señalización originados en dinámica tumoral, sistemas complejos multicelulares, neurociencia y coagulación sanguínea:: Proyecto de Excelencia E- 4267. Source of Funding: Junta de Andalucía
Duration, from: 3/01/09 until 12/01/12. Grant amount: 199.500,00€. Research Coordinator: Juan Soler. Team 8 members.

5) Title of the project: Modelización y análisis matemático de fenómenos no lineales en teoría cinética de EDPs con origen en biomedicina (dinámica tumoral y vías de señalización) y astrofísica: MTM2008-05271. Source of Funding: Ministerio de Educación y Ciencia
Duration, from: 01/01/09 until 31/12/11. Grant amount: 134.915,00€
Research Coordinator: Juan Soler. Team 5 members.

6) Title of the project: Mathematical Methods and Computer Simulation of Tumour Growth and Therapy: MRTN-CT-2004-503661. Source of Funding: Unión Europea. Duration, from June 1, 2004 until May 31, 2008. Grant amount: 2.942.447 €. Research Coordinador: Nicola Bellomo (Politecnico di Torino). Coordinator: Miguel A. Herrero (UCM) and Juan Soler.

7) Title of the project: Modelos Físico-Matemáticos y análisis de los datos de la misión espacial Planck (ESA): Proyecto de Excelencia E-972. Source of Funding: Junta de

Andalucía. Duration, from: 1/3/2006 until: 1/3/2009   Grant amount: 75.100€. Research Coordinator: Eduardo Battaner (UGR).

8) Title of the project: Modélisation, Analyse, Simulation d'équations d'ondes hydrodinamiques: M06/03. Source of Funding: INRIA, Programme 3+3 Méditerranée
Duration, from: 1/1/06 until: 31/12/09 Grant amount: 40.000 €
Research Coordinator: Thierry Goudon (Université de Nice) and Juan Soler.

C.3. Organization of Events (brief summary):

More information can be found at: http://www.ugr.es/~jsoler/
http://www.ugr.es/~kinetic/

- BIOMAT schools. Organized annually since 13 years.
- 2006: Organizer, together with Amable Liñán and Antonio Sánchez of the 11th International Conference on Numerical Combustion (SIAM Conference)
- 2006: Organizer, together with Luis L. Bonilla et al., of the 4th European Conference for Mathematics in Industry (ECMI Conference)
- 2008: Organizer, together with Xavier Cabré of Topics in PDE's and applications (CRM-FISYMAT joint activity)
- 2010: Organizer, together with Simone Calogero, Piotr Chruściel and Juanjo Nieto of the PDEs, Relativity and Nonlinear Waves
- 2013: "Lluis Santaló" School: Mathematics of planet Earth: Scientific challenges in a sustainable planet

C.4. Editorial committees (Brief summary)

Editor of the following publications:
-Mathematical Models and Methods in the Applied Sciences,
-EMS Surveys in Mathematical Sciences,
-AIMS Biophysics
-AMS book series: Mathematical Surveys and Monographs, University Lecture Series, Graduate Studies in Mathematics.

C.5. PhD Research Advisor:

Title: Study of weak solutions of the Vlasov-Poisson-Fokker-Planck equations
Doctoral student: José Antonio Carrillo
Date: May 1996
Subsequent working positions: Professor Imperial College

Title: Analysis of PDEs in Kinetic and Quantum Theory
Doctoral student: José Luis López
Date: June 1999
Subsequent working positions: Associate Professor at the Universidad de Granada

Title: Asymptotic methods in Partial Differential Equations originated in kinetic and quantum theory
Doctoral student: Juan J. Nieto
Date: September 2001
Subsequent working positions: Associate Professor at the Universidad de Granada

Title: Deterministic and Stochastic PDE arising in Semiconductor Theory and Stellar Dynamics
Doctoral student: Óscar Sánchez
Date: September 2003
Subsequent working positions: Associate Professor at the Universidad de Granada

Title: Some problems related to the study of interaction kernels: coagulation, fragmentation and diffusion in kinetic and quantum equations
Doctoral student: José Cañizo
Date: June 2006
Subsequent working positions: Lecturer at the University of Birmingham. Nº1 in the Ramón y Cajal 2013 National Competition, with a position at the University of Granada.

Title: Dispersion vs Difusión in Transport PDE Equations
Doctoral student: Juan Calvo
Date: March 2010
Subsequent working positions: Contratado Juan de la Cierva, Universidad Pompeu Fabra. Postdoctoral position (similar to Ramón y Cajal position) at the University of Granada.

Title: Analysis of dissipation and difusión mechanisms modeled by modeled by nonlinear PDEs in developmental biology and quantum mechanics
Doctoral student: Pilar Guerrero
Date: September 2010
Subsequent working positions: Postdoctoral contract at CRM (Barcelona), Posdoctoral contract University College London

Title: Partial Differential Equations for the analysis of biopolymeric models
Doctoral student: María Ofelia Vásquez
Date: December 2015
Subsequent working positions: Associate Professor at the Universidad de Cartagena (Colombia)

C.6. Patents

1. Number: IPR-678
Date   29/05/17
Title: Ultrasonic low-frequency bioreactor as a selective therapy against cancer
Inventors: JA. Marchal, G. Rus, J. Soler, G. Jiménez, J. Melchor, E. López-Ruiz, M. Hurtado

2. Number: IPR-701
Date: 18/04/17
Title: Ultrasonic low frequency portable device for selective tumor therapy
Inventors: JA. Marchal, G. Rus, J. Soler, G. Jiménez, J. Melchor, E. López-Ruiz, M. Riveiro

C.7. Other research merits

1) Participation in various projects of the **European Commission**, which has coordinated three consecutive (as responsible for the Spanish node) since 1997 and has coordinated another:
- Nonlinear Spatio-Temporal Structures in Semiconductors. Fluid and Oscillator Ensembles.
- Asymptotic Methods in Kinetic Theory.
- Asymptotic Methods and Applications in Kinetic and Quantum-Kinetic Theory.
- Hyperbolic and Kinetic Equations: Asymptotics, Numerics, Applications.
- Modelling, Mathematical Methods and Computer Simulation of Tumour Growth and Therapy.
- eVACUATE: A holistic, scenario-independent, situation-awareness and guidance system for sustaining the Active Evacuation Route for large crowds.

2) Founder and coordinator of the Master's program in Physics and Mathematics (FISYMAT) from 1998 to 2009. Scientific coordinator and coordinator of the FISYMAT doctoral program up to the present.

3) Project reviewer for the European Union, Colciencias, MCYT, NSF, OTAN, ANVUR, AFR, ERC, NSF, ACSUCYL, ANECA and ANEP.

4) Participation in relevant committees: National Research Award Committee Julio Rey Pastor 2003, Project Commission of the National Mathematics Plan 2004 - 2007, Committee Juan de la Cierva 2013, Member of the Scientific Committee of the 7ECM (Congress European Mathematical Society)- 2016. Scientific Committee of: Congresos de la RSME y SEMA.

5) 37 guest and plenary conferences in the last 10 years.

6) References

- Mathematics Genealogy Project
  http://genealogy.math.ndsu.nodak.edu/id.php?id=154711

- El Árbol de la Matemáticas
  http://www.arbolmat.com/juan-soler/