

# Óscar Sánchez Romero

## Dirección

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## Estudios

- 1999 "Licenciado en Matemáticas"  
Universidad de Granada  
Facultad de Ciencias
- 2003 "Doctor en Matemáticas"  
Universidad de Granada  
Facultad de Ciencias

## Experiencia

- 01/10/99 - 28/02/00 Profesor Ayudante de Escuela Universitaria.  
Departamento de Matemáticas  
Universidad Carlos III de Madrid
- 01/03/00 -28/02/2003 Beca FPU del Ministerio de Educacion y Cultura.  
Departamento de Matematica Aplicada  
Universidad de Granada
- 01/03/03-25/03/2010 Profesor Colaborador y Contratado Doctor.  
Departamento de Matemática Aplicada  
Universidad de Granada
- 26/03/2010-presente Profesor Titular de Universidad.  
Departamento de Matemática Aplicada  
Universidad de Granada

## Languages

- Inglés
- Francés (nivel principiante)

**Publicaciones**

- Qualitative behavior for flux-saturated mechanisms: traveling waves, waiting time and smoothing effects,  
 J. Calvo, J. Campos, V. Caselles, O. Sánchez, J. Soler,  
 Journal of the European Mathematical Society, 19 (2017), 441-472, DOI 10.4171/JEMS/670
- Métodos Numéricos básicos con Octave,  
 A. Delgado, J.J. Nieto, A. M. Robles, O. Sánchez, ,  
 Ed. Técnica AVICAM (Fleming), Granada 2016. ISBN: 978-84-16535-79-8, Deposito Legal: GR 1213-2016.
- Pattern formation in a flux limited reaction-diffusion equation of porous media type,  
 J. Calvo, J. Campos, V. Caselles, O. Sánchez, J. Soler,  
 Inventiones mathematicae, 206 (2016), 57-108. DOI 10.1007/s00222-016-0649-5
- Flux-Saturated porous media equations and applications,  
 J. Calvo, J. Campos, V. Caselles, O. Sánchez, J. Soler,  
 EMS Surv. Math. Sci. 2 (2015), 131-218. doi: 10.4171/EMSS/11.
- Modeling Hedgehog signalling through flux-saturated mechanism,  
 O. Sánchez, J. Calvo, C. Ibañez, A. Ruiz I Altaba, I. Guerrero, J. Soler,  
 Hedgehog Signaling Protocols, Vol. 1332 of the series Methods in Molecular Biology (Springer, 2015), 19–33.
- On flux-limited morphogenesis. Reply to the comments on Morphogenetic action through flux-limited spreading,  
 M. Verbeni, O. Sánchez, E. Mollica, I. Siegl-Cachedenier, A. Carleton, I. Guerrero, A. Ruiz I Albaba, J. Soler,  
 Physics of Life Reviews 10 (4), 495- 497 (2013).
- Morphogenetic action through flux-limited spreading,  
 M. Verbeni, O. Sánchez, E. Mollica, I. Siegl-Cachedenier, A. Carleton, I. Guerrero, A. Ruiz I Albaba, J. Soler,  
 Physics of Life Reviews 10(4), 457- 475 (2013).
- Existence of steady states for the Maxwell-Schrödinger-Poisson system: exploring the applicability of the concentration-compactness principle,  
 I. Catto, J. Dolbeault, O. Sánchez, J. Soler,  
 Mathematical Models and Methods in Applied Sciences, n 23 (10), 1915-1938 (2013).
- On the analysis of travelling waves to a nonlinear flux limited reaction-diffusion equation,  
 J. Campos, P. Guerrero, O. Sánchez, J. Soler,  
 Annales de l' IHP -Analyse non linéaire, Vol. 30 141-155 (2013).
- High field regimes and non standard shock relations in semiconductor superlattices theory,  
 Th. Goudon, J. Nieto, O. Sánchez, J. Soler,  
 SIAM Journal on Applied Mathematics, Vol. 71, 180-199 (2011).
- Virial inequalities for steady states in relativistic galactic dynamics,  
 S. Calogero, J. Calvo, O. Sánchez, J. Soler,  
 Nonlinearity 23 1851-1871 (2010).

- Dispersive behavior in Galactic Dynamics,  
S. Calogero, J. Calvo, O. Sánchez, J. Soler,  
Discrete and Continuous Dynamical Systems-Series B, Vol 14, 1-16 (2010).
- On an unified theory of cold dark matter halos based on collisionless Boltzmann-Poisson polytropes,  
J. Calvo, E. Florido, O. Sánchez, E. Battaner, J. Soler, B. Ruiz-Granados,  
Physica A, Statistical Mechanics and its applications, Vol. 388, 2321-2330 (2009).
- Asymptotic behaviour and orbital stability of galactic dynamics in relativistic scalar gravity,  
S. Calgero, O. Sánchez, J. Soler,  
Arch. for Rational Mech. Anal., Vol. 194, 743-773 (2009).
- Orbital Stability for Polytropic galaxies,  
O. Sánchez, J. Soler,  
Annales de l' IHP -Analyse non lineaire. Vol. 23, N 6, 781-802 (2006).
- Long time behaviour to the Schrödinger-Poisson-X alpha systems,  
O. Bokanowski, J.L. Lpez, O. Sánchez, J. Soler.  
Mathematical Physics of Quantum Mechanics,p. 217-232. Selected and Refereed Lectures from QMath9. Series: Lecture Notes in Physics, Vol. 690, Asch, Joachim; Joye, Alain (Eds.), 2006, XXI, 485 p. 42 illus., ISBN: 3-540-31026-6 (2006)).
- Stability for the gravitational Vlasov-Poisson system in dimension two,  
J. Dolbeault, J. Fernández , O. Sánchez,  
Communications in Partial Differential Equations, Vol 31, N 10, 1425-1449 (2006).
- Low-field limit for a nonlinear discrete drift-diffusion model arising in semiconductor superlattices theory,  
T. Goudon, O. Sánchez, J. Soler, L. L. Bonilla.  
SIAM Journal on Applied Mathematics, Vol. 64, N 5, 1526-1549 (2004).
- Asymptotic behaviour for the Vlasov-Poisson system in the stellar dynamic case,  
J. Dolbeault, O. Sánchez, J. Soler,  
Arch. for Rational Mech. Anal., Vol. 171, 301-327 (2004).
- Long-time dynamics of the Schrödinger-Poisson-Slater system,  
O. Sánchez, J. Soler,  
Journal of Statistical Physics, Vol. 114, N 1 / 2, 179-204 (2004).
- Random domain-relocation times in semiconductor superlattices: a stochastic discrete drift-diffusion approach (pp 159-163),  
L. L. Bonilla, O. Sánchez, J. Soler,  
Progress in Industrial Mathematics at ECMI 2002. Series: Mathematics in Industry. The European Consortium for Mathematics in Industry. Edited by Buikis, Andris; Ciegis, Raimondas; Fitt, Alistair D, 2004 (409 p), ISBN:3-540-40113-X.
- Asymptotic decay estimates for the repulsive Schrödinger-Poisson System,  
O. Sánchez, J. Soler,  
Math. Meth. Appl. Sci, Vol. 27, 371-380 (2004).
- Nonlinear stochastic discrete drift-diffusion theory of charge fluctuation and domain relocation times in semiconductor superlattices,  
L.L. Bonilla, O. Sánchez, J. Soler,  
Phys. Rev. B, 65, 195308 (2002).

**Participación en proyectos de investigación**

January 2015 - present

Proyecto del Ministerio de Economía y Competitividad (Proyectos de I+D+I: Retos de investigación)  
“Dinámica evolutiva, teoría cinética y descripciones hidrodinámicas en ciencias de la vida”  
(MTM2014-53406-R)

January 2014- present

Proyecto de excelencia de la Junta de Andalucía  
“Modelado matemático de sistemas complejos en Ciencias de la Vida: de la dinámica tumoral  
al comportamiento colectivo de especies (BIOMAT)”  
(FQM-954)

May 2001 - present

Grupo de Investigación de la Junta de Andalucía  
(FQM-316)