Iván Calvo

Date of birth	May 12th, 1979
Citizenship	Spanish
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Employment

Oct. '09 – today	Permanent Research Scientist (*Científico Titular*) in the Theory Group of the *Laboratorio Nacional de Fusión* at CIEMAT, Madrid, Spain.
Jun. '06 – Sep.'09	Research Scientist in the Theory Group of the *Laboratorio Nacional de Fusión, Asociación* EURATOM-CIEMAT, Madrid, Spain.

Education

Jun. '06	PhD in Physics (*Doctor Europeus*), University of Zaragoza, Spain. Grade: *Summa cum laude*.
Jun. '02	B.Sc. and M.Sc. in Physics, University of Zaragoza. Highest grade (*Matrícula de Honor*) in all subjects. Grade Point Average: 4.0/4.0. Ranked 1st in Spain.

Honors and awards

2014, 2015	Visiting Scholar and Full Member of the Senior Common Room at Merton College, Oxford, UK.
2013	Young Theoretical Physicist Award, Royal Physical Society of Spain and BBVA Foundation.
2010	Visiting Fellowship of the Isaac Newton Institute for Mathematical Sciences, Cambridge, UK.
2008	Member of the Spanish delegation to the *58th Meeting of Nobel Laureates* in Lindau, Germany.
2007	*Premio Extraordinario de Doctorado*, awarded by the University of Zaragoza to the top PhD theses.
2005	Distinguished alumnus, Sagrada Familia School, Zaragoza.
2003	PhD fellowship of the Spanish Ministry of Education.
2003	*Primer Premio Nacional Fin de Carrera de Física*, awarded by the Spanish Ministry of Education to the best graduate in Physics in Spain.
2002	*Premio Extraordinario de Licenciatura en Física*, awarded by the University of Zaragoza to the best graduate in Physics.
2002	*Premio Academia General Militar* to the best graduate in the Faculty of Science at the University of Zaragoza.
1997	*Premio Extraordinario de Bachillerato*, awarded by the Spanish Ministry of Education to the top high-school students.

Research experience

Oct.-Nov. '17, Oct.-Nov. '15, Sep.-Oct. '14	University of Oxford, UK. Visitor at the Rudolf Peierls Centre for Theoretical Physics.
Apr. '17, Jun. '16	National Institute for Fusion Science, Toki, Japan. Visiting Scientist at the Fusion Theory and Simulation Research Division.
May-Jun. '13 Sep. '12	Massachusetts Institute of Technology, Cambridge, Massachusetts, USA. Visiting Scientist at the Plasma Science and Fusion Center.
Jul. '17, Jul. '16, Jul. '15, Mar. '13, Mar. '12, Apr. '11	Wolfgang Pauli Institute, Vienna, Austria.
Aug. '10	Isaac Newton Institute for Mathematical Sciences, Cambridge, UK. Visiting Fellow.
Jan.-Mar. '09 Jan.-Apr. '08 Feb.-May '07	Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA. Visiting Scientist at the Fusion Energy Division.
Feb. '06	ETH Zürich, Department of Mathematics.
Oct.-Dec. '04 Sep.-Oct. '03	École Normale Supérieure de Lyon, Laboratoire de Physique Théorique, Lyon, France.
Jul.-Sep.'02	Deutsches Elektronen-Synchrotron, Zeuthen (Berlin), Germany. Selected for the Summer Student Programme.

Research grants

As the Principal Investigator:

– ENE2015-70142-P, Proyecto de I+D del Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia, Ministerio de Economía y Competitividad. "Collisional and turbulent transport in stellarators", 2016-2018. 29645 €.

– ENE2012-30832, Plan Nacional de I+D+i, Programa Nacional de Proyectos de Investigación Fundamental, Ministerio de Economía y Competitividad. "Kinetic transport theory and simulation of turbulent and non-turbulent fusion plasmas", 2013-2015. 44460 €.

– ENE2009-07247, Plan Nacional de I+D+i, Programa Nacional de Proyectos de Investigación Fundamental, Ministerio de Ciencia e Innovación. "Influence of global flows and their topology on transport in turbulent plasmas", 2010-2012. 56386 €.

As the Activity Manager:

– "Basic Transport Theory" task of the Work Package "Stellarator optimization: Theory Development, Modelling and Engineering" under the EUROfusion Consortium. Funded by the Euratom Horizon 2020 programme. 2014 – today.

As a member of the research team:

– *Work Package* "S1 - Preparation and exploitation of W7-X", Consorcio EUROfusion. Funded by the Euratom Horizon 2020 programme. PI: Andreas Dinklage.

– "Turbulent and neoclassical transport in tokamak plasmas", EUROfusion Consortium. Funded by the Euratom Horizon 2020 programme. 2017-2018. PI: Xavier Garbet.

– "Turbulent transport near threshold: experimental and theoretical investigation of the effect of sheared flows and collisions on the ion- and electron-scale turbulence in tokamaks", EUROfusion Consortium. Funded by the Euratom Horizon 2020 programme. 2014. PI: Anthony R. Field.

– WP13-IPH-A04-P2-02, "Experimental characterisation and numerical modelling of impurity flow and transport", European Fusion Development Agreement, 2013. Contact Person: Arturo Alonso.
– WP13-IPH-A04-P1-01, "Physics of plasma flows and momentum transport in stellarators and tokamaks", European Fusion Development Agreement, 2013. Contact Person: Arturo Alonso.
– Grupo Teórico de Altas Energías (Grupo de Excelencia E24/2), Diputación General de Aragón, 2006-2007. PI: Manuel Asorey.
– Grupo Teórico de Altas Energías (Grupo Consolidado E24/2), Diputación General de Aragón, 2004-2005. PI: Manuel Asorey.
– Grupo Teórico de Altas Energías (Grupo Consolidado), Diputación General de Aragón, 2003-2004. PI: Manuel Asorey.
– Red transpirenaica de Teoría cuántica de campos (Barcelona-Montpellier-Zaragoza), CPT-R06/2003, Diputación General de Aragón, 2003-2004. PI: Manuel Asorey.
– Programa de cooperación bilateral entre los grupos de Altas Energías de las Universidades de Nápoles y Zaragoza: Fundamental Aspects of Quantum Field Theories, Ministerio de Ciencia y Tecnología, 2001-2006. PI: Manuel Asorey.
– FPA 2003-02948, Física cuántica de campos no perturbativa, Ministerio de Educación y Ciencia, 2004-2006. PI: José Luis Cortés.
– FPA 2000-1252, Física cuántica de campos no perturbativa, Ministerio de Ciencia y Tecnología, 2001-2003. PI: José Luis Cortés.

Academic service

– Co-advisor (with Edilberto Sánchez) of Pedro Monreal for his PhD thesis (Universidad Complutense de Madrid, July 2017, *Summa cum laude*).
– Organizer of three editions of the *Gyrokinetic Theory Working Group Meeting* in Madrid,
  September 26–30, 2016;
  June 30 – July 11, 2014;
  June 18–29, 2012.
– Member of the Programme Committee of the European Fusion Theory Conference (2015 – today).
– Referee for Physical Review Letters, Nuclear Fusion, Plasma Physics and Controlled Fusion, Physics of Plasmas, Journal of Plasma Physics, Reports on Progress in Physics, Europhysics Letters, Journal of Physics A: Mathematical and Theoretical.
– Referee for EUROfusion Enabling Research projects, funded by the Euratom Horizon 2020 programme.
– Reviewer for the *Agencia Nacional de Evaluación y Prospectiva* of Spain and for the *Agencia Nacional de Promoción Científica y Tecnológica* of Argentina.

Teaching experience

2004 – 2005 Teaching assistant at the Department of Theoretical Physics of the University of Zaragoza: *Differential Calculus, Integral Calculus*.

Science outreach

Apr. 2003 *Jornadas de inmersión a la investigación*, addressed to last-year high-school students.

Languages

Spanish	**Native**
English	**Fluent**
French	**Intermediate**
German	**Beginner**

Research papers

[61]. "Stellarator impurity flux driven by electric fields tangent to magnetic surfaces". Iván Calvo, Félix I. Parra, J. L. Velasco, J. Arturo Alonso and J. M. García-Regaña. `arXiv:1803.05691`

[60]. "Oscillatory relaxation of zonal flows in a multi-species stellarator plasma". E. Sánchez, I. Calvo, J. L. Velasco, F. Medina, A. Alonso, P. Monreal, R. Kleiber and the TJ-II team. `arXiv:1801.09495`

[59]. "Large tangential electric fields in plasmas close to temperature screening". J. L. Velasco, I. Calvo, J. M. García-Regaña, F. I. Parra, S. Satake, J. A. Alonso and the LHD team. `arXiv:1712.03872`

[58]. "Overview of the JET results in support to ITER". X. Litaudon *et al*. *Nuclear Fusion* 57, 102001 (2017).

[57]. "Major results from the first plasma campaign of the Wendelstein 7-X stellarator". R. C. Wolf *et al*. *Nuclear Fusion* 57, 102020 (2017).

[56]. "3D effects on transport and plasma control in the TJ-II stellarator". F. Castejón *et al*. *Nuclear Fusion* 57, 102022 (2017).

[55]. "Semianalytical calculation of the zonal-flow oscillation frequency in stellarators". P. Monreal, E. Sánchez, I. Calvo, A. Bustos, F. I. Parra, A. Mishchenko, A. Könies and R. Kleiber. *Plasma Physics and Controlled Fusion* 59, 065005 (2017).

[54]. "Observation of oscillatory radial electric field relaxation in a helical plasma". J. A. Alonso, E. Sánchez, I. Calvo, J. L. Velasco, K. J. McCarthy, A. Chmyga, L. G. Eliseev, T. Estrada, R. Kleiber, L. I. Krupnik, A. V. Melnikov, P. Monreal, F. I. Parra, S. Perfilov, A. I. Zhezhera and the TJ-II Team. *Physical Review Letters* 118, 185002 (2017).

[53]. "The effect of tangential drifts on neoclassical transport in stellarators close to omnigeneity". Iván Calvo, Felix I. Parra, J. L. Velasco and J. A. Alonso. *Plasma Phys. Control. Fusion* 59, 055014 (2017).

[52]. "Moderation of neoclassical impurity accumulation in high temperature plasmas of helical devices". J. L. Velasco, I. Calvo, S. Satake, A. Alonso, M. Nunami, M. Yokoyama, M. Sato, T. Estrada, J. M. Fontdecaba, M. Liniers, K. J. McCarthy, F. Medina, B. Ph. van Milligen, M. Ochando, F. Parra, H. Sugama, A. Zhezhera, the LHD experimental team and the TJ-II team. *Nuclear Fusion* 57, 016016 (2017).

[51]. "Confirmation of the topology of the Wendelstein 7-X magnetic field to better than 1:100,000". T. Sunn Pedersen *et al*. *Nature Communications* 7, 13493 (2016).

[50]. "Particle transport after pellet injection in the TJ-II stellarator". J. L. Velasco, K. J. McCarthy, N. Panadero, S. Satake, D. López-Bruna, A. Alonso, I. Calvo, A. Dinklage, T. Estrada, J. M. Fontdecaba, J. Hernández, R. García, F. Medina, M. Ochando, I. Pastor, S. Perfilov, E. Sánchez, A. Soleto, B. Ph. van Milligen, A. Zhezera, the HIBP team, and the TJ-II team. *Plasma Physics and Controlled Fusion* 58, 084004 (2016).

[49]. "Parallel impurity dynamics in the TJ-II stellarator". J. Arturo Alonso, Iván Calvo, Teresa Estrada, Josep M. Fontdecaba, José Manuel García-Regaña, Joachim Geiger, Matt Landreman, Kieran McCarthy, Francisco Medina, Boudewijn Van Milligen, María A. Ochando, Felix I. Parra, and José Luis Velasco. *Plasma Physics and Controlled Fusion* 58, 074009 (2016).

[48]. "Residual zonal flows in tokamaks and stellarators at arbitrary wavelengths". P. Monreal, I. Calvo, E. Sánchez, F. I. Parra, A. Bustos, A. Könies, R. Kleiber, and T. Görler. *Plasma Physics and Controlled Fusion* 58, 045018 (2016).

[47]. "Radial transport of toroidal angular momentum in tokamaks". Iván Calvo and Felix I. Parra. *Plasma Physics and Controlled Fusion* 57, 075006 (2015).

[46]. "Electrostatic potential variations along flux surfaces in stellarators". M. A. Pedrosa, J. A. Alonso, J. M. García-Regaña, C. Hidalgo, J. L. Velasco, I. Calvo, C. Silva, and P. Helander. *Nuclear Fusion* 55, 052001 (2015).

[45]. "Less constrained omnigenous stellarators". Felix I. Parra, Iván Calvo, Per Helander, and Matt Landreman. *Nuclear Fusion* 55, 033005 (2015).

[44]. "Flow damping in stellarators close to quasisymmetry". Iván Calvo, Felix I. Parra, J. L. Velasco, and J. Arturo Alonso. *Plasma Physics and Controlled Fusion* 57, 014014 (2015).

[43]. "Transport, stability and plasma control studies in the TJ-II stellarator". J. Sánchez *et al*. *Nuclear Fusion* 55, 104014 (2015).

[42]. "Equivalence of two independent calculations of the higher order guiding center Lagrangian". F. I. Parra, I. Calvo, J. W. Burby, J. Squire, and H. Qin. *Physics of Plasmas* 21, 104506 (2014).

[41]. "Optimizing stellarators for large flows". Iván Calvo, Felix I. Parra, J. Arturo Alonso, and José Luis Velasco. *Plasma Physics and Controlled Fusion* 56, 094003 (2014).

[40]. "Dynamics of flows and confinement in the TJ-II stellarator". J. Sánchez *et al*. *Nuclear Fusion* 53, 104016 (2013).

[39]. "Stellarators close to quasisymmetry". Iván Calvo, Felix I. Parra, J. L. Velasco, and J. Arturo Alonso. *Plasma Physics and Controlled Fusion* 55, 125014 (2013).

[38]. "Damping of radial electric field fluctuations in the TJ-II stellarator". J. L. Velasco, J. A. Alonso, I. Calvo, J. Arévalo, E. Sánchez, L. Eliseev, S. Perfilov, T. Estrada, A. López-Fraguas, C. Hidalgo, and the TJ-II team. *Plasma Physics and Controlled Fusion* 55, 124044 (2013).

[37]. "Collisionless damping of flows in the TJ-II stellarator". Edilberto Sánchez, Ralf Kleiber, Roman Hatzky, Matthias Borchardt, Pedro Monreal, Francisco Castejón, Antonio López-Fraguas, Xavier Sáez, José Luis Velasco, Iván Calvo, Arturo Alonso, and Daniel López-Bruna. *Plasma Physics and Controlled Fusion* 55, 014015 (2013).

[36]. "Long-wavelength limit of gyrokinetics in a turbulent tokamak and its intrinsic ambipolarity". Iván Calvo and Félix I. Parra. *Plasma Physics and Controlled Fusion* 54, 115007 (2012).

[35]. "Vanishing neoclassical viscosity and physics of the shear layer in stellarators". J. L. Velasco, J. A. Alonso, I. Calvo, and J. Arévalo. *Physical Review Letters* 109, 135003 (2012).

[34]. "Extreme-value distributions and renormalization group". Iván Calvo, Juan C. Cuchí, J. G. Esteve, and Fernando Falceto. *Physical Review E* 86, 041109 (2012).

[33]. "Shear-flow susceptibility near the low density transition in TJ-II". D. Carralero, I. Calvo, S. da Graça, B. A. Carreras, T. Estrada, M. A. Pedrosa, and C. Hidalgo. *Plasma Physics and Controlled Fusion* 54, 065006 (2012).

[32]. "Intrinsic rotation with gyrokinetic models". Felix I. Parra, Michael Barnes, Iván Calvo, and Peter J. Catto. *Physics of Plasmas* 19, 056116 (2012).

[31]. "Overview of TJ-II experiments". J. Sánchez *et al*. *Nuclear Fusion* 51, 094022 (2011).

[30]. "Influence of β on the self-similarity properties of LHD edge fluctuations". D. Carralero, I. Calvo, M. Shoji, B. A. Carreras, K. Ida, S. Ohdachi, S. Sakakibara, H. Yamada, and C. Hidalgo. *Plasma Physics and Controlled Fusion* 53, 095010 (2011).

[29]. "Phase-space Lagrangian derivation of electrostatic gyrokinetics in general geometry". Felix I. Parra and Iván Calvo. *Plasma Physics and Controlled Fusion* 53, 045001 (2011).

[28]. "Generalized Central Limit Theorem and Renormalization Group". Iván Calvo, Juan C. Cuchí,

José G. Esteve, and Fernando Falceto. *Journal of Statistical Physics* 141, 409 (2010).

[27]. "Long-range correlations during plasma transitions in the TJ-II stellarator". M. A. Pedrosa, C. Hidalgo, C. Silva, B. A. Carreras, D. Carralero, I. Calvo, and the TJ-II Team. *Contributions in Plasma Physics* 50, 507 (2010).

[26]. "Deformation of Dirac structures along isotropic subbundles". Iván Calvo, Fernando Falceto, and Marco Zambon. *Reports on Mathematical Physics* 65, 259 (2010).

[25]. "Topological characterization of the transition from laminar regime to fully developed turbulence in the resistive pressure-gradient-driven turbulence model". L. Garcia, B. A. Carreras, I. Llerena, and I. Calvo. *Physical Review E* 80, 046410 (2009).

[24]. "Confinement transitions in TJ-II under Li-coated wall conditions". J. Sánchez *et al*. *Nuclear Fusion* 49, 104018 (2009).

[23]. "Zonal flows and long-distance correlations during the formation of the edge shear layer in the TJ-II stellarator". I. Calvo, B. A. Carreras, L. Garcia, M. A. Pedrosa, and C. Hidalgo. *Plasma Physics and Controlled Fusion* 51, 065007 (2009).

[22]. "Fractional Lévy motion through path integrals". I. Calvo, R. Sánchez, and B. A. Carreras. *Journal of Physics A: Mathematical and Theoretical* 42, 055003 (2009).

[21]. "Topological characterization of flow structures in resistive pressure-gradient-driven turbulence". B. A. Carreras, I. Llerena, L. Garcia, and I. Calvo. *Physical Review E* 78, 066402 (2008).

[20]. "The path integral formulation of fractional Brownian motion for the general Hurst exponent". I. Calvo and R. Sánchez. *Journal of Physics A: Mathematical and Theoretical* 41, 282002 (2008), FAST TRACK COMMUNICATION.

[19]. "Continuous time random walks in finite domains and general boundary conditions: some formal considerations". B. Ph. van Milligen, I. Calvo, and R. Sánchez. *Journal of Physics A: Mathematical and Theoretical* 41, 215004 (2008).

[18]. "Pseudochaotic poloidal transport in the laminar regime of the resistive ballooning instabilities". I. Calvo, L. Garcia, B. A. Carreras, R. Sánchez, and B. Ph. van Milligen. *Physics of Plasmas* 15, 042302 (2008).

[17]. "Estimation of pump-out and positive radial electric field created by ECRH in magnetic confinement devices". F. Castejón, S. Eguilior, I. Calvo, D. López-Bruna, and J. M. García-Regaña. *Physics of Plasmas* 15, 012504 (2008).

[16]. "Sheared flows and turbulence in fusion plasmas". M. A. Pedrosa, B. A. Carreras, C. Hidalgo, C. Silva, M. Hron, L. García, J.A. Alonso, I. Calvo, J.L. de Pablos, and J. Stöckel. *Plasma Physics and Controlled Fusion* 49, B303-B311 (2007).

[15]. "Continuous Time Random Walks in periodic systems: fluid limit and fractional differential equations on the circle". I. Calvo, B. A. Carreras, R. Sánchez, and B. Ph. van Milligen. *Journal of Physics A: Mathematical and Theoretical* 40, 13511-13522 (2007).

[14]. "Fractional generalization of Fick's law: a microscopic approach". I. Calvo, R. Sánchez, B. A. Carreras, and B. Ph. van Milligen. *Physical Review Letters* 99, 230603 (2007).

[13]. "Dynamics of a 1-D model for the emergence of the plasma edge shear flow layer with momentum conserving Reynolds stress". I. Calvo and B. A. Carreras. *Physics of Plasmas* 14, 102507 (2007).

[12]. "Overview of TJ-II experiments". J. Sánchez *et al*. *Nuclear Fusion* 47, S677-S685 (2007).

[11]. "Bopp operators and phase-space spin dynamics: Application to rotational quantum brownian motion". D. Zueco and I. Calvo. *Journal of Physics A: Mathematical and Theoretical* 40, 4635-4648 (2007).

[10]. "Reduction and projection of Dirac structures". Iván Calvo and Fernando Falceto. *Monografías de la Real Academia de Ciencias de Zaragoza*, vol. 29, 49-56 (2006).

[9]. "Dual branes in topological sigma models over Lie groups. BF-theory and non-factorizable Lie

bialgebras". Iván Calvo and Fernando Falceto. *Journal of High Energy Physics* 04, 058 (2006).

[8]. "Supersymmetric WZ-Poisson sigma model and twisted generalized complex geometry". Iván Calvo. *Letters in Mathematical Physics* 77, 53-62 (2006).

[7]. "Star products and branes in Poisson-Sigma models". Iván Calvo and Fernando Falceto. *Communications in Mathematical Physics* 268 (3), 607-620 (2006).

[6]. "Effects of constraints in general branched molecules: A quantitative ab initio study in HCO-L-Ala-NH2". Pablo Echenique, J. L. Alonso, and Iván Calvo. *AIP Conference Proceedings: BIFI 2006 II International Congress*, Vol. 851, 108–116 (2006).

[5]. "Quantum mechanical calculation of the effects of stiff and rigid constraints in the conformational equilibrium of the Alanine dipeptide". Pablo Echenique, Iván Calvo, and J. L. Alonso. *Journal of Computational Chemistry* 27, 1733-1747 (2006).

[4]. "Explicit factorization of external coordinates in constrained Statistical Mechanics models". Pablo Echenique and Iván Calvo. *Journal of Computational Chemistry* 27, 1748-1755 (2006).

[3]. "Poisson-Dirac branes in Poisson-Sigma models". Iván Calvo and Fernando Falceto. Proceedings of the 4th Conference on Poisson Geometry. Luxembourg, 7–11 de junio de 2004. *Travaux mathématiques*, University of Luxembourg, vol. XVI, 221-128 (2005).

[2]. "Poisson reduction and branes in Poisson-Sigma models". Iván Calvo and Fernando Falceto. *Letters in Mathematical Physics* 70, 231-147 (2004).

[1]. "Topological Poisson Sigma models on Poisson-Lie groups". Iván Calvo, Fernando Falceto, and David García Álvarez. *Journal of High Energy Physics* 10, 033 (2003).

Invited talks, oral contributions and seminars

[24]. Wolfgang Pauli Institute, Vienna, Austria. *Neoclassical calculation of the tangential electric field in stellarators close to omnigeneity (and tokamaks with broken symmetry)*, July 17, 2017.

[23]. Wolfgang Pauli Institute, Vienna, Austria. *The effect of tangential drifts on neoclassical transport in stellarators close to omnigeneity*, July 27, 2016.

[22]. Seminar at the National Institute for Fusion Science, Toki, Japan. *Low collisionality neoclassical transport in stellarators close to omnigeneity: the role of tangential drifts*, June 17, 2016.

[21]. 16th European Fusion Theory Conference. *Quasisymmetry far from the magnetic axis*. Lisbon, Portugal, October 5 – 8, 2015.

[20]. Gyrokinetic Theory Working Group Meeting. *Optimizing stellarators for large flows*. Madrid, Spain, June 30 – July 11, 2014.

[19]. 41st EPS Conference on Plasma Physics. *Optimizing stellarators for large flows*. Berlin, Germany, June 23–27, 2014.

[18]. 19th International Stellarator and Heliotron Workshop. *Calculating the radial electric field in quasisymmetric stellarators*. Padova, Italy, September 16–20, 2013.

[17]. Wolfgang Pauli Institute, Vienna, Austria. *Violation of ambipolarity due to a small deviation from quasisymmetry*, March 27, 2013.

[16]. Gyrokinetic Theory Working Group Meeting. *A formulation of electromagnetic gyrokinetics covering from microturbulence to MHD-turbulence scales*. Madrid, Spain, June 18–29, 2012.

[15]. Wolfgang Pauli Institute, Vienna, Austria. *A full-f approach to second-order electromagnetic gyrokinetics*, March 27, 2012.

[14]. Wolfgang Pauli Institute, Vienna, Austria. *Second-order gyrokinetics at long wavelengths: the tokamak radial electric field*, April 14, 2011.

[13]. Seminar at Universidad Complutense de Madrid. *Adiabatic invariants and kinetic equations for fusion plasma turbulence*, February 25, 2011.

[12]. V National Conference BIFI 2011. *Adiabatic invariants and kinetic equations for fusion plasma turbulence*, February 2–4, 2011.

[11]. Seminar at University of Zaragoza, Department of Theoretical Physics. *Adiabatic invariants and kinetic equations for fusion plasma turbulence*, November 19, 2010.

[10]. Isaac Newton Institute for Mathematical Sciences, Cambridge, U.K. *Lagrangian formulation of gyrokinetic theory with a single expansion parameter*, August 10, 2010.

[9]. Seminar at University of Zaragoza, Department of Theoretical Physics. *Turbulent toroidal plasmas, flow topology and anomalous transport*, October 30, 2009.

[8]. 13th European Fusion Theory Conference. *Topological characterization of flows in plasma turbulence: the impact of topology on transport*. Riga, Latvia, October 12–15, 2009.

[7]. XXXII Bienal de Física. *Topology of flows in turbulent toroidal plasmas and its impact on transport*. Ciudad Real, Spain, September 7–11, 2009.

[6]. Seminar at University of Zaragoza, Department of Theoretical Physics. *Fenómenos de transporte sin escalas características y ecuaciones de difusión fraccionarias: generalización fraccionaria de la Ley de Fick*, June 20, 2008.

[5]. Seminar at Laboratorio Nacional de Fusión, Asociación EURATOM-CIEMAT. *Fractional generalization of Fick's law: a microscopic approach through Continuous Time Random Walks*. Madrid, June 1, 2007.

[4]. Seminar at Laboratorio Nacional de Fusión, Asociación EURATOM-CIEMAT. *Deformation quantization and the Poisson sigma model*. Madrid, February 2006.

[3]. Seminar at ETH Zürich, Department of Mathematics, February 2006.

[2]. Campus de Excelencia 05. *Poisson-Sigma models*. Canary Islands, Spain, June 10–16, 2005.

[1]. Seminar at École Normale Supérieure de Lyon, Laboratoire de Physique Théorique, December 2004.

Other conference contributions

[44]. *Tangential magnetic drift, tangential electric field and their impact on stellarator radial neoclassical transport.* Iván Calvo, José Luis Velasco, Félix I. Parra, J. Arturo Alonso and José Manuel García-Regaña. 17th European Fusion Theory Conference. Athens, Greece, October 9-12, 2017.

[43]. *Large tangential electric fields in plasmas close to temperature screening.* J. L. Velasco, I. Calvo, J. M. García-Regaña, F. Parra, S. Satake, A. Alonso, M. Nunami and the LHD team. 21st International Stellarator and Heliotron Workshop. Kyoto, Japan, October 2–6, 2017.

[42]. *Benchmark of bootstrap current calculations in multi-ion species helical plasmas.* S. Satake, M. Sato, M. Yokoyama, H. Sugama, S. Nishimura, K. Nishioka, Y. Nakamura, J. L. Velasco, I. Calvo, B. Huang and the LHD experiment group. 21st International Stellarator and Heliotron Workshop. Kyoto, Japan, October 2–6, 2017.

[41]. *Ion heat transport in low-density Wendelstein 7-X plasmas.* J. A. Alonso, C. D. Beidler, I. Calvo, A. Dinklage, Y. Feng, G. Fuchert, M. Hirsch, M. Landreman, A. Langenberg, H. Maassberg, N. Pablant, H. Smith, J. L. Velasco, G. Weir, D. Zhang and the W7-X Team. 43th EPS Conference on Plasma Physics. Belfast, Northern Ireland, June 26–30, 2017.

[40]. *Influence of poloidal drifts on neoclassical transport in optimized stellarators.* Iván Calvo, Félix I. Parra, José Luis Velasco, and J. Arturo Alonso. 43th EPS Conference on Plasma Physics. Leuven, Belgium, July 4–8, 2016.

[39]. *Spatial localization of electrostatic microinstabilities in the TJ-II stellarator.* E. Sánchez, J. L. Velasco, I. Calvo, and R. Kleiber. 43th EPS Conference on Plasma Physics. Leuven, Belgium, July 4–8, 2016.

[38]. *Perturbative particle transport experiments with pellet injection.* J. L. Velasco, K. J. McCarthy, A. Alonso, N. Panadero, S. Satake, D. López-Bruna, E. de la Cal, I. Calvo, A. Dinklage,

T. Estrada, J. M. Fontdecaba, F. Medina, M. Ochando, I. Pastor, S. Perfilov, E. Sánchez, M. Yokoyama, and the TJ-II team. 20th International Stellarator and Heliotron Workshop. Greifswald, Germany, October 5–9, 2015.

[37]. *Inertia and equilibrium impurity flow in 3D magnetic surfaces.* J. A. Alonso, J. L. Velasco, and I. Calvo. 42th EPS Conference on Plasma Physics. Lisbon, Portugal, June 22–26, 2015.

[36]. *Intrinsic rotation in tokamaks.* F. I. Parra, M. Barnes, and I. Calvo. 2014 Transport Task Force Meeting. Culham Centre for Fusion Energy, United Kingdom, September 8–11, 2014.

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