List of scientific publications, professional creative works, and information about educational achievements, scientific cooperation, and popularization of science
dr. Javier de Lucas Araujo

Personal information

Name and surname	Javier de Lucas Araujo
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	Faculty of Physics, University of Warsaw
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Degrees

1. **Polish Habilitation:** I obtained my accreditation as a '*doktor habilitowany*'[1] from the Komisja Centralna Spraw Tytułów i Stopni (Central Agency for the assessment of titles and degres) in 2017.
1. **Profesor contratado doctor:** I obtained my accreditation as a '*Profesor contratado doctor*'[2] from the ANECA (Agencia Nacional de Evaluación de la Calidad y Acreditación, National Agency for the Evaluation of Excellence and Accreditation) in 2012.
2. **PhD in Physics:** I defended my PhD thesis '*Lie systems and applications to Quantum Mechanics*', written under the supervision of prof. J.F. Cariñena Marzo, in the Faculty of Sciences of the University of Zaragoza (Spain) on October 23rd, 2009. My PhD dissertation obtained the highest distinction (SOBRESALIENTE CUM LAUDE), and I was awarded with the *Special Prize for Doctoral Theses of the University of Zaragoza* in 2011[3].
3. **MSc in Physics**. Faculty of Physics, University of Salamanca, 2004. I was awarded with a grant '*Beca de colaboración*' for the best students of the last year of the degree on Physics in 2004[4].

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[1]This term refers to researchers who have passed the official tenure examination 'Polska habilitacja' that allows Polish researchers to supervise PhD students and ensures the right to acquire a permanent position in academia.

[2]This term refers to researchers who have passed an official tenure examination that allows Spanish researchers to supervise PhD students and to acquire a permanent position in academia.

[3]The University of Saragossa offers yearly one such a prize for each of its faculties

[4]The master thesis appeared in the Spanish university system only after the introduction of the Bologna process.

Scientific Career

1999–2004 MSc studies, Degree in Physics, University of Salamanca, Salamanca (Spain).

2004–2006 PhD studies, Department of Mathematics, University of Salamanca, Salamanca (Spain).

2006–2009 PhD studies, Department of Theoretical Physics, University of Zaragoza, Zaragoza (Spain).

2007–2009 Assistant professor, Department of Theoretical Physics, University of Zaragoza, Zaragoza (Spain).

2009–2012 Postdoc fellowship, Assistant professor, IMPAN, Warsaw (Poland).

2012–2013 Assistant professor, Faculty of Mathematics and Natural Sciences, School of Exact Sciences, Cardinal Stefan Wyszyński University, Warsaw (Poland).

2013–2018 Assistant professor, Department of Mathematical Methods in Physics, University of Warsaw (Poland).

I. List of publications

In the following list of publications, the number of citations and the impact factors (IFs) were given on the basis of the Web of Knowledge and Journal Citation Reports database. For the papers published before to 2016 I detail the impact factor of the year of publication. In the case of papers published or accepted in 2016 I provide the impact factor for 2015. I disclosed the total number of citations of each work and, between parenthesis, the number of citations without self-citations. My Hirsch index is 9. Total citations 270 (without self-citations 99).

(1) A. Ballesteros, R. Campoamor-Stursberg, E. Fernandez-Saiz, F.J. Jose Herranz and J. de Lucas, Poisson-Hopf algebra deformations of Lie-Hamilton systems, *J. Phys. A* **51** 065202 (2018), IF = 1.857 (Q1), citations = not available.

(2) F.J. Herranz, J. de Lucas, M. Tobolski Lie-Hamilton systems on curved spaces: A geometrical approach, J. Phys. A **50**, 495201 (2017), IF = 1.857 (Q1), citations = not available.

(3) M.M. Lewandowski, J. de Lucas, Geometric features of Vessiot–Guldberg Lie algebras of conformal and Killing vector fields on ?2, *Banach Center Publications*, to appear (2017). IF = 1.821 (2015), (Q1 - 14/312 w Mathematics), citations = not available.

(4) A.M. Grundland and J. de Lucas, A Lie systems approach to the Riccati hierarchy and partial differential equations, *J. Differential Equations*, to appear (2017). IF = 1.821 (2015), (Q1 - 14/312 w Mathematics), citations = not available.

(5) P. Garcia-Estevez, F.J. Herranz, J. de Lucas and C. Sardón, Lie symmetries for Lie systems: Applications to systems of ODEs and PDEs, *Appl. Math. Comp.* **273**, 435–452 (2016). IF = 1.345 (2015), (Q1 - 54/254 Mathematics, Applied), citations = 1(0).

(6) J. de Lucas, M. Tobolski and S. Vilariño, Geometry of Riccati equations over normed division algebras, *J. Math. Anal. Appl.* **440**, 394–414 (2016). IF = 1.014 (2015), (Q1 - 56/312 w Mathematics), citations = 1(1).

(7) J.F. Cariñena and J. de Lucas, Quasi–Lie families, schemes, invariants and their applications to Abel equations, *J. Math. Anal. Appl.* **430**, 648–671 (2015). IF = 1.014 (2015), (Q1 - 25/53 w Physics, Mathematical), citations = 0.

(8) J.F. Cariñena, J. de Lucas and M.F. Rañada, Jacobi multipliers, non-local symmetries, and nonlinear oscillators, *J. Math. Phys.* **56**, 063505 (2015). IF $= 1.234$ (2015), (Q2 - 25/53 w Physics, Mathematical), citations $= 1(1)$.

(9) J. de Lucas and S. Vilariño, k-symplectic Lie systems: theory and applications, *J. Differential Equations* **258** (6), 2221–2255 (2015). IF $= 1.821$ (2015), (Q1 - 14/312 w Mathematics), citations $= 3(1)$.

(10) A. Ballesteros, A. Blasco, F.J. Herranz and C. Sardón, Lie–Hamilton systems on the plane: Properties, classification and applications, *J. Differential Equations* **258**, 2873–2907 (2015). IF $=1.821$ (2015), (Q1 - 14/312 w Mathematics), citations$= 5(4)$.

(11) A. Blasco, F.J. Herranz, J. de Lucas and C. Sardón, Lie–Hamilton systems on the plane: applications and superposition rules, *J. Phys. A* **48**, 345202 (2015). IF $= 1.933$ (2015), (Q1 - 11/53 w Physics, Mathematical), citations $= 1(0)$.

(12) J. de Lucas, M. Tobolski and S. Vilariño, A new application of k-symplectic Lie systems, *Int. J. Geom. Methods Mod. Phys.* **12**, 1550071 (2015). IF $= 0.769$ (2015), (Q4 - 41/53 w Physics, Mathematical), citations $= 2(1)$.

(13) F.J. Herranz, J. de Lucas and C. Sardón, Jacobi–Lie systems: theory and low dimensional classification in: *The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications*, 2015, p. 605–614. IF $=$ it does not apply, citations $=$ unknown.

(14) J.F. Cariñena, J. Grabowski, J. de Lucas and C. Sardón, Dirac–Lie systems and Schwarzian equations, *J. Differential Equations* **257** (7), 2303–2340 (2014). IF $= 1.68$ (2014), (Q1 - 16/312 w Mathematics), citations $= 3(0)$. My contribution represents the 55% of the paper.

(15) A. Ballesteros, J.F. Cariñena, F.J. Herranz, J. de Lucas and C. Sardón, From constants of motion to superposition rules for Lie–Hamilton systems, *J. Phys. A: Math. Theor.* **46**, 285203 (2013). IF $=1.687$ (2013), (Q2 - 26/78 w Physics, Multidisciplinary), citations $= 7(1)$.

(16) J.F. Cariñena, J. de Lucas and C. Sardón, Lie–Hamilton systems: theory and applications, *Int. J. Geom. Methods Mod. Phys.* **10**, 1350047 (2013). IF $= 0.617$ (2013), (Q4 - 45/55 w Physics, Mathematical), citations $= 5(0)$.

(17) J.F. Cariñena, J. de Lucas i P. Guha, A quasi-Lie schemes approach to the Gambier equation, *SIGMA* **9**, 026 (2013). IF $= 1.299$ (2013), (Q2 - 25/55 w Physics, Mathematical), citations $= 5(4)$.

(18) J. Grabowski and J. de Lucas, Mixed superposition rules and the Riccati hierarchy, *J. Differential Equations* **254**, 179–198 (2013). IF $=1.570$ (2013), (Q1 - 13/302 w Mathematics), citations $= 6(2)$.

(19) J.F. Cariñena, J. de Lucas and C. Sardón, A new Lie systems approach to second-order Riccati equations, *Int. J. Geom. Methods Mod. Phys.* **9**, 1260007 (2012). IF $= 0.951$ (2012), (Q3 - 34/55 w Physics, Mathematical), citations $= 5(1)$.

(20) J.F. Cariñena, J. de Lucas i J. Grabowski, Superposition rules for higher-order systems and their applications, *J. Phys. A: Math. Theor.* **45**, 185202 (2012). IF $= 1.766$ (2012), (Q2 - 13/55 w Physics, Mathematical), citations $= 14(4)$.

(21) J.F. Cariñena and J. de Lucas, Superposition rules and second-order Riccati equations, *J. Geom. Mech.* **3**, 1–22, (2011). IF $= 0.812$, (Q2 - 101/245 w Physics, Mathematical), citations $= 24(13)$.

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(22) P.G. Estevez, M.L. Gandarias and J. de Lucas, Classical Lie symmetries and reductions of a nonisospectral Lax pair , *J. Nonlinear Math. Phys.* **18**, 51–60 (2011). IF = 0.543, (Q4 - 47/55 w Physics, Mathematical), citations = 0.

(23) J.F. Cariñena and J. de Lucas, Integrability of Lie systems through Riccati equations, *J. Nonl. Math. Phys.* 18, 29–54 (2011). IF = 0.543 (2011), (Q4 - 47/55 w Physics, Mathematical), citations = 5(3).

(24) J.F. Cariñena, J. de Lucas and M.F. Rañada, A geometric approach to integrability of Abel differential equations, *Int. J. Theor. Phys.* **50**, 2114–2124 (2011). IF = 0.845 (2011), (Q3 - 48/84 w Physics, Multidisciplinary), citations = 8(3).

(25) J.F. Cariñena and J. de Lucas, Lie systems: theory, generalizations, and applications, *Dissertationes Math.* **479**, 1–169, (2011). IF = 0.214, (Q4 - 279/289 w Mathematics), citations = 28(13).

(26) J.F. Cariñena, J. Grabowski and J. de Lucas, Lie families: theory and applications, *J. Phys. A* **43**, 305201 (2010). IF =1.641 (2010), (Q2 - 17/54 w Physics, Mathematical), citations = 6(0).

(27) R. Flores, J. de Lucas and Y. Vorobiev, Phase splitting for periodic Lie systems, *J. Phys. A.* **43**, 205208 (2010). IF = 1.641 (2010), (Q2 - 17/54 w Physics, Mathematical), citations = 7(1).

(28) J.F. Cariñena, J. de Lucas and M.F. Rañada, Lie systems and integrability conditions for *t*-dependent frequency harmonics oscillators, *Int. J. Geom. Methods Mod. Phys.* **7**, 289–310 (2010). IF = 1.612, (Q2 - 18/47 w PHYSICS, Mathematical), citations = 5(2).

(29) J.F. Cariñena and J. de Lucas, Quantum Lie systems and integrability conditions, Int. J. Geom. Meth. Mod. Phys. **6**, 1235–1252 (2009). IF = 1.612, (Q2 - 18/47 w PHYSICS, Mathematical), citations = 7(3)

(30) J.F. Cariñena, P.G.L. Leach and J. de Lucas, Quasi-Lie schemes and Emden–Fowler equations , J. Math. Phys. **50**, 103515 (2009). IF = 1.318, (Q3 - 24/47 w PHYSICS, Mathematical), citations =8(1).

(31) J.F. Cariñena, J. Grabowski and J. de Lucas, Quasi-Lie schemes: theory and applications, J. Phys. A **42**, 335206 (2009). IF = 1.577, (Q2 - 19/47 w PHYSICS, Mathematical), citations = 14(0).

(32) J.F. Cariñena and J. de Lucas, Applications of Lie systems in dissipative Milne–Pinney equations, Int. J. Geom. Meth. Modern Phys. **6**, 683–699 (2009). IF = 1.612, (Q2 - 18/47 w PHYSICS, Mathematical), citations =17(9).

(33) J.F. Cariñena, J. de Lucas and A. Ramos, A geometric approach to time evolution operators of Lie quantum systems, Int. J. Theor. Phys. **48**, 1379–1404 (2009). IF = 0.688, (Q3 - 51/71 w PHYSICS, Multidisciplinary), citations = 8(3).

(34) J.F. Cariñena, J. de Lucas and M.F. Rañada, Recent Applications of the Theory of Lie Systems in Ermakov Systems, SIGMA **4**, 031 (2008). IF = 0.789, (Q3 - 35/47 w PHYSICS, Mathematical), citations =32(14).

(35) J.F. Cariñena, J. de Lucas and M.F. Rañada, Integrability of Lie systems and some of its applications in physics, J. Phys. A **41**, 304029 (2008). IF = 1.540, (Q2 - 19/47 w PHYSICS, Mathematical), citations =8(2).

(36) J.F. Cariñena and J. de Lucas, A nonlinear superposition rule for solutions of the Milne–Pinney equation, Phys. Lett. A, **372**, 5385–5389 (2008). IF = 2.174, (Q2 - 22/71 w PHYSICS, Multidisciplinary), citations =23(16).

(37) J.F. Cariñena, J. de Lucas and A. Ramos, *A geometric approach to integrability conditions for Riccati equations,* Electronic Journal of Differential Equations **122**, 1–14 (2007). IF = 0.417, (Q3 - 205/289 w MATHEMATICS), citations = 12(3).

(38) F. Avram, J.F. Cariñena and J. de Lucas, A Lie systems approach for the first passage-time of piecewise deterministic processes, w: *Modern Trends of Controlled Stochastic Processes: Theory and Applications*, Luniver Press, 2010, pp. 144–160.

(39) J.F. Cariñena i J. de Lucas, *Lie systems and integrability conditions of differential equations and some of its applications*, in: *Differential Geometry and its applications*, pp 407–417, World Science Publishing, Prague, (2008).

(40) J.F. Cariñena, J. de Lucas i M.F. Rañada, *Nonlinear superpositions and Ermakov systems* w: *Differential Geometric Methods in Mechanics and Field Theory: Volume in honour of W. Sarlet*, Academia Press, Gent, 2007, 15–33.

I was one of the editors of the book: *Geometry of Jets and Fields - in honour of Professor Janusz Grabowski* (eds. K. Grabowska, M. Jóźwikowski, J. De Lucas i M. Rotkiewicz), Banach Center Publications **18**, Vol. 110, Warsaw, 2016.

Citation of publications according to Web of Science (WoS): 280 (without self-citations 103).

Hirsch index according to Web of Science (WoS): 9 .

Direction of international and national research projects and participation in such projects

Code: MTM2006-10531
Title: Geometric and variational methods in integrability and Control Theory
Funding organization: Ministerio de Eduación y Ciencia (Ministry of Education and Science)
Principal researcher: J.F. Cariñena Marzo
Period: 2007-2009
Type of participation: Collaborator

Code: MTM2009-11154
Title: Geometric methods in integrability and Control Theory
Funding organization: Ministerio de Eduación y Ciencia (Ministry of Education and Science)
Principal researcher: J.F. Cariñena Marzo
Period: 2009–2012
Type of participation: Collaborator

Code: E24/1
Title: Mathematical Physics and Field Theory
Funding organization: Dirección General de Aragón (Council of Aragón)
Principal researcher: Julio Abad , Manuel Fernandez Rañada
Period: 2007–2009 and 2009–2011.

Type of participation: Collaborator

Code: MTM2006-27467-E
Title: Geometry, Mechanics and Control
Funding organization: Ministerio de Educación y Ciencia (Ministry of Education and Science)
Principal researcher: Juan Carlos Marrero
Period: od 15/01/2007 do 26/04/2009
Type of participation: Collaborator

Code: MTM2007-30168-E
Title: Geometry, Mechanics and Control
Funding organization: Ministerio de Educación y Ciencia (Ministry of Education and Science)
Principal researcher: Juan Carlos Marrero
Period: od 20/01/2008 do 20/04/2009
Type of participation: Collaborator

Code: MTM2008-03606-E
Title: Geometry, Mechanics and Control
Funding organization: Ministerio de Educación y Ciencia (Ministry of Education and Science)
Principal researcher: Juan Carlos Marrero
Period: od 20/01/2009 do 20/04/2010
Type of participation: Collaborator

Code: MTM2009-08166-E
Title: Geometry, Mechanics and Control
Funding organization:: Ministerio de Educación y Ciencia (Ministry of Education and Science)
Principal Researcher: Juan Carlos Marrero
Period: od 01/02/2010 do 30/04/2011
Type of participation: Collaborator

Code: MTM2010-12166-E
Title: Geometry, Mechanics and Control
Funding organization: Ministerio de Educación y Ciencia (Ministry of Education and Science)
Principal Researcher: Juan Carlos Marrero
Period: od 01/02/2011 do 30/04/2012
Type of participation: Collaborator

Code: HARMONIA Nr 2012/04/M/ST1/00523
Title: Lie systems: theory, generalizations, and applications
Funding organization: National Science Center (Poland)
Principal researcher: Prof. dr. hab. J. Grabowski

Period: 2012-2015
Type of participation: Collaborator

Code: MAESTRO Nr DEC-2012/06/A/ST1/00256.
Title: Geometria of Jets and Fields
Funding organization: National Science Center (Poland)
Principal researcher: Prof. dr. hab. J. Grabowski
Period: 2012–in progress
Type of participation: Collaborator

Code: HARMONIA Nr 2016/22/M/ST1/00542.
Title: Lie systems and selected topics in Lie theory and differential equations
Funding organization: National Science Center (Poland)
Principal researcher: Prof. dr. hab. J. Grabowski
Period: 04-04-2017–03-04-2017
Type of participation: Collaborator

International and national prizes in recognition to scientific or artistic activity

- 2017 - Didactic Award of the Dean of the University of Warsaw.
- 2016 - Award in recognition of achievements affecting the development and prestige of the University of Warsaw, University of Warsaw.
- 2015 - Individual prize of third degree, Faculty of Physics, University of Warsaw.
- 2014 - Best teacher of the Faculty of Physics, University of Warsaw (UW Student council).
- 2013 - Didactic Award for outstanding classes and lectures, Summer term, University of Warsaw.
- 2011 - Postdoc fellowship for young researchers, IMPAN.
- 2010 - Special Award for Doctoral Theses, University of Zaragoza, year 2009/2010.
- 2010 - Postdoc fellowship for young researchers, IMPAN.
- 2009 - Postdoc fellowship for young researchers, IMPAN.
- 2006 - F.P.U. Fellowship funded by the Ministerio de Educación y Ciencia (Ministry of Education and Science) for the best students in Spain to accomplish my PhD thesis project "Lie systems and applications to Quantum Mechanics".
- 2005 - Fellowship funded by the Faculty of Science of the University of Salamanca for the best students in the University of Salamanca starting their PhD.
- 2005 - F.P.I. Fellowship funded by the Junta de Castilla y León (Castilla y León council) for the best students in the Castilla y León region starting their PhD.
- 2003 - Fellowship 'Beca de colaboración' funded by the Ministry of Education, Culture and Sport (Spain) and granted by the Faculty of Science of the University of Salamanca for the best (5) students of the Faculty of Physics of the University of Salamanca in the period from 1999 to 2003.

Talks at international and national thematic conferences

(1) Course: *Applications of Lie Systems to Classical Mechanics and Control Theory*, **I meeting of young researchers on Geometry, Mechanics and Control**, Madrid, Spain, December 19–20, 2006.

(2) Talk: *Recent results on the theory of Lie systems and applications*, **IX Winter meeting on Mechanics, Geometry and Control**, Saragossa, Spain, January 30–31, 2007.

(3) Talk: *Recent applications of the theory of Lie systems in Ermakov systems*, **VIIth International conference on Symmetry in Nonlinear Mathematical Physics**, Kijów, Ukraine, June 24–30, 2007.

(4) Talk: *New geometric approaches in the study of Ermakov systems*, **XXII International workshop on differential geometric methods in theoretical mechanics**, sierpień, IMPAN Research and conference center in Będlewo, Będlewo, Polska.

(5) Invited talk: *Fundamentals and applications of Lie systems*, Department Applied Mathematics IV, University of Catalunia, Spain, November 21, 2007.

(6) Talk: *Integrability of Lie systems and applications*, **II meeting of young researches on Geometry , Mechanics and Control**, Madrid, Spain, December 19, 2007.

(7) Poster: *Integrability of Lie systems in Classical and Quantum Mechanics*, **I Iberoamerican meeting on Geometry, Mechanics and Control**, University of Santiago de Compostela, Spain, June 23–27, 2008.

(8) Talk: *Quasi-Lie schemes and applications*, **International Young researchers workshop on on Geometry, Mechanics and Control**, Barcelona, Spain, December 16–18, 2008.

(9) Talk: *Quasi-Lie schemes and applications*, **XI Winter meeting on Geometry, Mechanics and Control Theory**, University of Saragossa, Spain, January 26–27, 2009.

(10) Talk: *Control Lie systems and applications*, **Geometry of constraints and control**, IMPAN, Warsaw, Poland, October 25–31, 2009.

(11) Talk: *Lie families: theory and applications*, **IV International Summer School on Control, Geometry and Mechanics**, University of Santiago de Compostela, Santiago de Compostela, Spain, July 5–9, 2010.

(12) Poster: *Lie systems: theory, generalizations, and applications.*, **IV International Summer School on Control, Geometry and Mechanics**, University of Santiago de Compostela, Santiago de Compostela, Spain, July 5–9, 2010.

(13) Poster: *Superposition rules and second-order Riccati equations*, **XIX International Fall Workshop on Geometry and Physics**, University of Porto, Porto, Portugal, September 6–9, 2010.

(14) Invited talk: *Theory and applications of Lie systems and quasi-Lie schemes*, Faculty of Mathematics, University of Salamanca, Salamanca, Spain, September 22, 2010.

(15) Talk: *Geometric structures and superposition rules*, **Centennial congress of the Spanish Royal Mathematical Society R.S.M.E. 2011**, Ávila, Spain, February 1–5, 2011.

(16) Talk: *Lie–Hamilton systems: theory and applications*, **5th International Summer School on Geometry, Mechanics and Control**, La Cristalera, Miraflores de la Sierra, Spain, July 4–8, 2011.

(17) Invited talk: *Lie–Hamilton systems*, **Congress of the Mexican Mathematical Society**, University of San Luís de Potosí, San Luís de Potosí, Mexico, October 9–14, 2011.

(18) Invited talk: *Superposition rules and Lie systems*, University of Sonora, Hermosillo, Mexico, October 16, 2011.

(19) Invited talk: *Superposition rules and Lie systems*, University of Salamanca, Salamanca, Spain, May 15, 2012.

(20) Talk: *Mixed superposition rules: theory and some applications*, **XXI International Fall Workshop on Geometry and Physics**, University of Burgos, Burgos, Spain, August 30–September 1, 2012.

(21) Invited talk: *Lie-Hamilton Systems: theory and applications*, Faculty of Physics, University of Burgos, Burgos, Spain, September 2, 2012.

(22) Invited talk: *Mixed Superposition rules: theory and applications*, University of Burgos, Burgos, Spain, October 16, 2012.

(23) Talk: *Dirac–Lie systems: theory and applications*, **Thematic day on Dirac Structures and Applications**, University of Saragossa, Saragossa, Spain, February 1, 2013 r.

(24) Talk: *Dirac–Lie systems: theory and applications*, **I Meeting on Lie systems: theory, generalisations, and applications**, IMPAN, Warsaw, May 20–24, 2013.

(25) Invited talk: *Dirac–Lie systems: theory and applications*, **XXIII Meeting on Differential Equations and Applications**, University Jaume I, Castellon, Spain, September 9–13, 2013.

(26) Invited talk: *Geometric structures and Lie systems: Theory and applications*, University of Burgos, Burgos, Spain, December 20, 2013.

(27) Talk: *New trends on Lie systems*, **II Meeting on Lie systems: theory, generalisations, and applications**, IMPAN, Poland, September 22–27, 2014.

(28) Invited talk: *Lie-Hamilton systens: theory and applications*, University of Łódz, Łódz, Poland, May 24, 2015.

(29) Talk: *Geometry and applications of Lie–Hamilton systems on the plane*, **III Meeting on Lie systems: theory, generalisations, and applications**, IMPAN, Warsaw, September 21–26, 2015.

(30) Invited talk: *k-symplectic Lie systems: theory and applications*, **III Young researchers conference of the RSME**, University of Murcia, Murcia, Spain, September 7–11, 2015.

(31) Talk: *A Lie systems approach to the Riccati hierarchy and PDEs*, **50th Sophus Lie Seminar**, IMPAN Research and conference center in Będlewo, Będlewo, Poland, September 26–October 1, 2016.

(32) Invited talk: *Applications of Lie systems to Bernoulli-type equations*, University of Burgos, Burgos, Spain, December 16, 2016.

III. Didactic and divulgation achievements, as well as information on international collaborations of the candidate

Participation in European programs and/or other international and national programs.

I took part as a collaborator in a project HARMONIA funded by the Polish National Center for research within an international collaboration between Poland and Spain from 2012 to 2015.

Participation in international and national scientific conferences

(1) **School on Combinatorics and Control**, Benasque, Spain, April 11–17, 2010.
(2) **XIII Winter Meeting on Geometry, Mechanics and Control Theory**, Saragossa, Spain, 26–27 stycznia 2011 r.
(3) **XIII Thematic day on: Classic Field Theory**, Saragossa, Spain, January 28, 2011.
(4) **Geometry of Manifolds and Mathematical Physics**, Craków, Poland, June 27, July 1, 2011.
(5) **III Iberoamerican Meeting on Geometry, Mechanics and Control**, Salamanca, Spain, September 3–7, 2012.
(6) **XV Winter meeting on Mechanics, Geometry and Control**, Saragossa, Spain, January 30–31, 2013.
(7) **8th Symposium on Integrable Systems**, Department of Physics and Applied Mathematics, University of Łódz, Łódź, Poland, July 3–4, 2015.
(8) **Quantum Spacetime '16**, Zakopane, Poland, February 6–12, 2016.
(9) **Geometry of Fields and Jets**, IMPAN Research and conference center in Będlewo, Będlewo, Poland, May 10–16, 2016.

Participation in organizing committees of international and national research conferences

- **I Meeting on Lie systems: theory, generalisations, and applications**, IMPAN, Warsaw, Poland, May 20–24, 2013.
- **II Meeting on Lie systems: theory, generalisations, and applications**, IMPAN, Warsaw, Poland, September 22–27, 2014.
- **III Meeting on Lie systems: theory, generalisations, and applications**, IMPAN, Warsaw, Poland, September 21–26, 2015.
- **Geometry of Jets and Fields**, IMPAN Research and conference center in Będlewo, Będlewo, Poland, May 10–16, 2016.
- **50th Sophus Lie Seminar**, IMPAN Research and conference center in Będlewo, Będlewo, Poland, September 26–October 1, 2016.

Other Prizes and distinctions not detailed in points II-I

- 2014 - Winner of the prize 'Teacher of the year' at the Faculty of Physics of the University of Warsaw (Council of Students UW).

- 2013 - Didactic Award, Summer Semester, University of Warsaw. Prize conceded by the Department of Physics of the University of Warsaw in recognition for my exercise classes on Analysis II.

Participation in scientific networks

I have been participating from 2007 in the 'Geometry, Mechanics and Control Network' consisting of most Spanish researchers working on differential geometry and its applications in physics and/or control theory. This network is financed by the Ministerio de Educación y Ciencia (Ministry of Education and Science).

Direction of projects accomplished in collaboration with researchers from other research centers or companies others than those detailed in II H

It does not apply

Participation in research and editing journal boards

It does not apply

Participating in international and national research organizations and associations

It does not apply

Achievements concerning didactic activities and/or popularization of science and art

Teaching

- In the summer term of the academic year 02/03 I was the teaching assistant of the course on differential geometry at the Faculty of Physics of the University of Salamanca (Spain).
- In the academic years 07/08 and 08/09 I was the teaching assistant of the course on differential calculus I and II at the Faculty of Sciences of the University of Saragossa (Spain). The evaluation of my lectures was positive.
- In the academic year 12/13 I was the teaching assistant of the following classes at the Mathematical and Natural Sciences Department of the Cardinal Stefan Wyszyński University in Warsaw (Poland):
  - Introduction to higher mathematics
  - Algebra I
  - Mathematical Analysis I and II
  - Measure Theor
- In the academic years 2013-2016 I taught the following courses in the Faculty of Physics of the University of Warsaw:
  - Differential geometric methods in Physics, Lectures (acad. course 14/15, 30 hours)
  - Group theory I, Exercise classes (acad. course 15/16 i 16/17, 30 hours)

- Group theory II, Lectures (acad. course 15/16, 30 hours)
- Algebra with geometry II, Exercise classes (acad. course 12/13, 30 hours)
- Algebra I extended, Exercise classes (acad. course 13/14, 14/15, 30 hours)
- Algebra II extended, Exercise classes (acad. course 15/16, 30 hours)
- Analysis I, Exercise classes (acad. course 14/15, 60 hours),
- Analysis II, Exercise classes (acad. course 12/13, 13/14, 14/15, 15/16, 60 hours)
- Analysis III, Exercise classes (acad. course 16/17, 60 hours)
- Functional Analysis I, Exercise classes (acad. course 14/15 i 15/16, 30 hours)
- Analysis I extended, Exercise classes (acad. course 13/14 i 15/16, 60 hours)
- Mathematics I, Exercise classes (acad. course 13/14, 120 hours)

I was awarded a **didactic award** of the Faculty of Physics of the University of Warsaw in the summer semester of the academic course 12/13 for my exercise classes of Analysis II.

I was awarded as the „**Best teacher of the year of the Faculty of Physics of the University of Warsaw**" by the Student Council of the University of Warsaw in the academic year 12/13.

I was nominated to a **didactic award** of the Faculty of Physics of the University of Warsaw in the summer semesters of the academic years 13/14 and 15/16 for my exercise classes of Algebra I extended and Algebra II extended, correspondingly.

I took part in the "Physics day" of the Faculty of Physics of the University of Warsaw in the academic years 2014/15 and 2015/16.

J) Scientific supervision of students and doctors during specialization

Master Theses

- In 2013 I supervised the master thesis of Mariola Napiorkowska at the Department of Mathematics of the Cardinal Stefan Wyszyński University of Warsaw. Title: *Geometry of the simplex method.*
- In 2013 I supervised the master thesis accomplished of Katarzyna Kropopiek at the Department of Mathematics of the Cardinal Stefan Wyszyński University. Title: *Methods of calculation of mathematical reserves.*
- In 2017 I supervised the Master thesis of D. Wysocki at the Faculty of Physics of the University of Warsaw. Title: *Classification of Lie bialgebras and methods of quantization*
- Nowadays, I supervise the master theses of M. Tobolski (Lie-Hamilton systems on manifolds with curvature).

Batchelor theses

- In 2015 I supervised the Batchelor thesis accomplished by M. Tobolski, *Riccati equations over normed division algebras with applications* at the Faculty of Physics of the University of Warsaw. This Batchelor thesis gave rise to the publication J. de Lucas, M. Tobolski and S. Vilariño, Geometry of Riccati equations over normed division algebras, J. Math. Anal. Appl. **440**, 394–414 (2016).
- In 2015 I supervised the Batchelor thesis accomplished by D. Wysocki at the Faculty of Physics of the University of Warsaw. Title: *Algebraic and geometric methods of quantization.*

- In 2016 I supervised the Batchelor thesis accomplished by M. Lewandowski at the Faculty of Physic of the University of Warsaw. Title: *Theory and applications of Lie algebras of conformal and Killing vector fields.*
- In 2016 I supervised the Batchelor thesis accomplished by M. Skowronek at the Faculty of Physics of the University of Warsaw. Title: *Applications of the Marsden-Weinstein reduction to physics.*
- In 2017 I supervised the Batchelor thesis of W. Fabjańczuk at the Faculty of Physics of the University of Warsaw. Title: *Supergeometric methods and applications in Physics.*
- In 2017 I supervise the Batchelor thesis of J. Lange at the Faculty of Physics of the University of Warsaw. Title: *Infinite-dimensional Marsden-Weinstein reduction and applications to quantum mechanics.*

Supervision of students

I have been the supervisor of several of the very best students belonging to the programs of individual students of the Faculty of Physics (PSIF) and the Interdisciplinary program of individual studies on mathematics and life sciences (MISMaP). More specifically,

- I was the supervisor of the student Klaudia Nosal (MISMaP) and Julia Lange (PSIF).

- I was the supervisor of Klaudia Nosal (MISMaP) and Wojciech Fabjańczuk (PSIF) in the academic course 15/16.

- In the academic year 14/15, I was the supervisor of the students: Paweł Czajka, Wojciech Fabjańczuk and Maciej Antoni Pawlus (PSIF).

- In the academic year 13/14, I was the supervisor of Szymon Wrzesień (MISMaP).

Supervision of doctoral students as a supervisor or a secondary advisor

From 2017 I am the supervisor of the doctoral student Daniel Wysocki. His PhD thesis focuses on the use of Lie bialgebras and quantum algebras and their application to physics and integrable systems.

From 2012 to 2015 I was the secondary advisor at the Faculty of Physics of the University of Salamanca (Spain) of the doctoral thesis of Cristina Sardón Muñoz. Her doctoral thesis *Lie systems, Lie symmetries and reciprocal transformations* was defended on May 15, 2015 and she got the *Extraordinary prize for doctoral thesis of the University of Salamanca* in 2016. About the 70% of her doctoral thesis accomplished under my exclusive supervision as illustrated by her publications and this habilitation (her main advisor was P. Garcia Estévez).

Membership in tribunals of doctoral/batchelor/master theses

- Report and member of the tribunal of the batchelor thesis "Applications of Dirac structures: RLC circuits as an example of a system with nonholonomic constraints"

hold in the Faculty of Physics of the University of Warsaw, (Warsaw, Poland) on September 9, 2015.

- Report on the thesis "Open Quantum Systems: geometric description, dynamics and control" of the PhD Student Jorge Alberto Jover Galtier,
- Member of the tribunal thesis "Open Quantum Systems: geometric description, dynamics and control" of the PhD Student Jorge Alberto Jover Galtier hold in the Faculty of Sciences of the University of Saragossa, (Saragossa, Spain) on July 3, 2017.

Stays in international and national research centers

Long research stays

- August 6-September 6, 2016: Centre Recherches Mathématiques, CRM, University of Montreal, Canada.
- August 9-September 6, 2015: Centre Recherches Mathématiques, CRM, University of Montreal, Canada.
- August 28-September 29, 2012: University of Burgos, Burgos, Spain.
- October 1-December 31, 2011: University of Zaragoza, Zaragoza, Spain.

Short research stays (up to 3 weeks)

- École Normale Supérieure de Cacham (CLMA), Paris, France, 21-25 04-2017.
- École Normale Supérieure de Cacham (CLMA), Paris, France, February, 2017.
- University of Burgos, Burgos, Spain, December, 2016.
- University of Saragossa, Spain, June, 2015.
- Polytechnic University of Catalonia, Barcelona, Spain, December, 2015.
- University of Salamanca, Salamanca, Spain, May, 2010.
- University of Salamanca, Salamanca, Spain, September, 2010.

Participation in expert and groups

It does not apply

Referee for international and national projects

I was referee for the Portuguese Foundation for Science and Technology in 2014 and 2015.

Referee of publications in international and national journals

I have been referee for J. Phys. A, Adv. Math. Phys., Rep. Math. Phys., J. Dyn. Contr. Systems, Annals of Physics, Proc. Royal Soc. A, Int. J. Geom. Methods Mod. Physics, Advances in Mathematical Physics, Symmetry, EPJP and others.

Other achievements not listed above

- I collaborate with researchers from the University of Saragossa and Burgos (Spain), the Centre de Recherches Mathématiques of the University of Montreal (Canada), the Polytechnic University of Catalonia in Barcelona (Spain), IMPAN (Poland), ICMAT (Spain), Universidad Complutense de Madrid (Spain), and so on. Previously I worked with researchers from the S.N. Bose National Centre for Basic Sciences (India), the University of Sonora in Hermosillo (Mexico) and the University of Pau (France).
- I got one of the best grades of Spain in the Spanish Examination to enter the University (PAU) 1999 r. (9.50 out of 10)
- I got the highest distinction after finishing the high school ('MATRICULA DE HONOR') (9.98 out of 10)
- I got the second position in the 'XXXXIX Olimpiada Matematica Española (Castilla-La Mancha)' (Spanish Mathematical Olympiad) (1999). I participated in the national session (1999, Granada, Spain)
- I speak English, Spanish, and Polish fluently. I am a beginner in German, Russian, and French.