

CURRICULUM VITAE

I. PERSONAL DATA

1. **Name:** Janusz Roman Grabowski
2. **Date and place of birth:** April 30, 1955, Stalowa Wola (Poland).
3. **Address:** ul. Karola Borsuka 5/7, 02-793 Warsaw, POLAND
4. **Phone:** +48 604188222
5. **Position:** Professor at the Institute of Mathematics, Polish Academy of Sciences: Chair of the Mathematical Physics and Differential Geometry Department.

II. EDUCATION

1. **Master of Art 1978**, Mathematics, Warsaw University
2. **Doctor of Philosophy 1982**, Mathematics, Warsaw University, Thesis: *Lie algebras of vector fields on manifolds*.
3. **Habilitation 1993**, Mathematics, Warsaw University, Thesis: *Diffeomorphism groups infinite-dimensional Lie algebras over differentiable manifolds*.
4. **Full Professor 2001**, Mathematics

III. RESEARCH INTERESTS

Differential Geometry and Supergeometry, Mathematical Physics.

IV. EMPLOYMENT HISTORY

1. **Assistant Professor**, Warsaw University, Institute of Mathematics, 1978-82.
2. **Associate Professor**, Warsaw University, Institute of Mathematics, 1982-93.
3. **Professor**, Warsaw University, Institute of Mathematics, 1993-2001.
4. **Full Professor**, Institute of Mathematics, Polish Academy of Sciences, since 2001.
5. **Full Professor**, Faculty of Mathematics and Natural Sciences, College of Sciences, Cardinal Stefan Wyszyński University, Warsaw, 2009-2012.

V. GRANTS AND FELLOWSHIPS

- 1987-89, Alexander von Humboldt Fellowship (Tübingen, Germany)
- 1993-1995, grant of the Polish Research Committee (KBN) Nr 2 P301 046 03, *Structures of local Lie algebras*.
- 1995-1998, grant of the Polish Research Committee (KBN) Nr 2 P03A 074 10, *Infinite-dimensional Lie algebras*.
- 1999-2000, promotor's grant of the Polish Research Committee (KBN) Nr 2 P03A 039 16, *Gabor frames and affine frames* (for Dr. P. Wojdyło).
- 1999-2002, grant of the Polish Research Committee (KBN) Nr 2 P03A 031 17, *Brackets – constructions, properties, applications*.
- 2003-2006, grant of the Polish Ministry of Scientific Research Nr 2 P03A 020 24, *Algebraic structures in geometry and physics*.
- 2006-2009 grant of the Polish Ministry of Science and Higher Education Nr N201 005 31/0115, *Superalgebras and graded differential geometry with applications*.
- 2010-2013 grant of the Polish Ministry of Science and Higher Education Nr N N201 416839, *Differential geometry of graded bundles*.
- Marie Skłodowska-Curie individual Fellowships European, EUROPEAN COMMISSION, 01.09.2015 - 31.08.2017, scientific coordinator

- 2012-2015 grant HARMONIA of the Polish National Science Centre DEC-2012/04/M/ST1/00523, *Lie systems: theory, generalizations applications*.
- 2013-2018 grant MAESTRO of the Polish National Science Centre DEC-2012/06/A/ST1/00256, *Geometry of jets and field theories*.
- 2017-2020 grant HARMONIA of the Polish National Science Centre, *Lie systems and selected methods of Lie theory in differential equations*.

VI. PROMOTED DOCTORS OF PHILOSOPHY

1. Dr. Piotr Stachura, 1999, Thesis: *Differentiable groupoids and their C^* -algebras*.
2. Dr. Piotr Wojdyła, 2001, Thesis: *Gabor frames and affine frames. Their geometry and applications*.
3. Dr. Mikołaj Rotkiewicz, 2004, Thesis *On n -Lie algebras*.
4. Dr. Michał Jóźwikowski, 2011, Thesis *Optimal control on quasi-Lie algebroids*.

VII. CONFERENCES AND PRESENTATIONS (ONLY YEARS 2010-2017)

A) Membership in the scientific committees:

- 'Roads to Reality with Roger Penrose', Warszawa-Kraków, 17-21.05.2010, member of the Organizing Committee.
- Poisson Geometry in Mathematics and Physics, IMPA, Rio de Janeiro (Brazil), 24.07 - 01.08.2010 member of the Advisory Committee.
- Geometry of Manifolds and Mathematical Physics, to celebrate the 80th birthday of Włodzisław Tulczyjew - Polska, Kraków, 27.06-01.07. 2011, member of the Scientific Committee.
- New Developments in Geometric Mechanics: Discrete and Continuous Settings, Warszawa, 11-16.12.2011, organizer of the workshop.
- Geometry of Mechanics - Poland, Warszawa, 19-26.06.2011, organizer of the workshop.
- 'Covariant Field Theories I', Warszawa, 3-10.06.2012, organizer of the workshop.
- 'Covariant Field Theories II', Warszawa, 7-14.11.2012, organizer of the workshop.
- ESF Follow-Up Strategic Meeting, Banach Center, Warszawa, 13-16.02.2012, co-conventor.
- Workshop on Graded Algebra and Geometry, Luxembourg, 4-8.12.2012, member of the Scientific Committee.
- 'Lie systems: theory, generalizations, applications I', Banach Center, Warszawa, 20-24.05.2013, organizer of the workshop.
- 'Lie systems: theory, generalizations, applications II', Banach Center, Warszawa, 22-26.09.2014, organizer of the workshop.
- 'III Meeting on Lie systems', Poland, Warszawa, Banach Center, 21-26.09.2015, organizer of the workshop.
- 50th Seminar "Sophus Lie" - Polska, Bdlewo, 25.09.-01.10.2016, organizer of the conference.
- 'Classical and Quantum Physics: Geometry, Dynamics and Control. 60 Years Alberto Ibort Fest', 5 - 9 March, Madrid 2018, member of the Scientific Committee.
- 'Homotopy algebras, deformation theory and quantization', 16.09.2018 - 22.09.2018, Bdlewo (Poland), organizer of the conference.

B) Plenary and invited lectures, presentations at renowned international conferences:

- *Courant brackets, Dirac structures, and generalized geometries*, plenary talk, 'Current Geometry' (Vietri sul Mare, Italy) 16-20.06.2010.
- 'Poisson Geometry in Mathematics and Physics', IMPA, Rio de Janeiro (Brazil), 24.07 - 01.08.2010 – member of the Advisory Committee.
- *Courant brackets and Dirac structures*, plenary talk, 'XXVth International Workshop on Differential Geometric Methods in Theoretical Mechanics', Levico Terme (Italy), 22-29-08-2010.
- *Courant bracket contractions and generalized geometries*, invited talk, Deformation Methods in Mathematics and Physics, Oberwolfach, 26.09 - 02.10.2010.
- 'Higher Structures in Mathematics and Physics', participation by invitation, Vienna, 23-30.10.2010.
- *Dirac Algebroids*, invited lecture, ESF Exploratory Workshop on Current Problems in Differential Calculus over Commutative Algebras, Secondary Calculus, and Solution Singularities of Nonlinear PDEs - Italy, Vietri sul Mare (Salerno), 13-16.06.2011,.

- *Tulczyjew triples and Dirac algebroids*, invited lecture, Geometry of Manifolds and Mathematical Physics, to celebrate the 80th birthday of Włodzimierz Tulczyjew Kraków, 27.06-01.07. 2011.
- *Dirac Algebroids in Lagrangian and Hamiltonian Mechanics*, invited lecture, XX International Fall Workshops on Geometry and Physics, Madrid, 31.08-03.09.2011
- *Tulczyjew triples in mechanics and field theory*, invited lecture, Covariant Field Theory, Luxembourg, 5-8.12.2011.
- *Segre maps and entanglement for multipartite systems of indistinguishable particles*, invited talk in the conference Geometry of Quantum Entanglement, CIRM, Marseille, 8-14.01.2012
- *Principal Lie and Courant algebroids*, invited talk in the conference Geometric Mechanics, La Laguna, Spain, 12-19 April, 2012.
- *Linear symplectic and contact structures*, invited talk in the conference Geometric Structures and Control Theory, Dakar, Senegal, 9-18.05, 2012.
- *Tulczyjew triples in mechanics and field theories*, talk at the Satellite Thematic Session, 6th European Congress of Mathematics, Kraków, 2-7 July, 2012.
- *Brackets*, invited mini-course at the conference XXI International Fall Workshops on Geometry and Physics, Burgos, 29.08-01.09.2012.
- *Tulczyjew triples: from statics to field theory*, plenary talk at the Third Iberoamerican Meeting on Geometry, Mechanics and Control, Salamanca, September 3-7, 2012.
- *Modular classes of skew algebroid relations*, invited talk at the XXII International Fall Workshops on Geometry and Physics, Evora (Portugal), 31.08.-07.09.2013.
- *Legendre transformation in the dynamics of strings*, invited talk at the deLenfest 2013, Madrid, 13-20.12.2013.
- *Geometric Mechanics: from Statics to Field Theories*, plenary talk at the conference Geometry of Mechanics & Control Theory, Indian Institute of Sciences, Bangalore, January 02 - 10, 2014.
- *Statics - Mechanics - Field Theory*, plenary talk at the conference GAP XII 'Geometric Mechanics', Sanya, China, 10-14 March, 2014.
- *Dirac Algebroids in Formalisms of Constrained Mechanics*, plenary talk at the conference 'Non-holonomic mechanics and optimal control' - Paris, 25-28.11.2014.
- *Generalized Schmidt rank and entanglement for composite systems of indistinguishable particles*, poster at the conference 'The 18th Conference on Quantum Information Processing' - Australia, Sydney, UTS, 12-16.01.2016.
- *Tulczyjew triples in the dynamics of strings*, invited talk at the conference 'Integrability and Non-linearity in Field Theory' - Italy, Vietri sul Mare, 28-29.03.2015.
- *New developments in geometric mechanics*, invited talk at the conference 'Geometry of Jets and Fields' - Poland, Bdlewo, 10-16.05.2015.
- *Loopoids with applications to discrete mechanics*, invited talk at "LOOPS'15"-The International Mathematical Conference on Quasigroups and Loops - Macedonia, Ohrid, 28.06. - 04.07. 2015.
- *Weighted groupoids and algebroids with applications*, invited talk at the conference 'Workshop on Poisson Geometry and Mathematical Physics', China, Tianjin, Chern Institute, 4-8.01.2016.
- *Introduction to graded bundles*, invited talk at the conference '1st-International Conference on Differential Geometry', Morocco, Fez, 11-15.04.2016.
- *Introduction to the theory of graded bundles*, mini course at the school '10th International School on Geometry, Mechanics and Control', Spain, Miraflores, 20-24.06.2016.
- *Entanglement measure for composite systems of indistinguishable particles*, poster at the conference 'Quantum communication Measurement and Computing', Singapore, NUS, 4-6.07.2016.
- *Geometry of quantum systems*, invited talk at the conference 'Geometria é Fisica, a geometrical vision of physics', Italy, San Rufo, 11-13.07.2016.
- *Mechanics on graded bundles*, invited talk at the conference 'XXV International Fall Workshop on Geometry and Physics', Madrid, August 29th-September 2nd, 2016.
- *Graded geometry and field theory*, invited talk at XIXth International Conference on Geometry, Integrability and Quantization - Bulgaria, Varna, 1-8.06.2017.
- *Geometric Mechanics a la Tulczyjew on algebroids*, invited talk at the 61st Souriau Colloquium - France, Amboise, 25-10.06.2017

- *Introduction to graded manifolds*, a mini-course at the school Geometry of PDEs and Secondary Calculus - Italy, Lizzano in Belvedere, 20-31.07.2017
- *Splitting theorem for colored supermanifolds*, invited talk at the conference "Supergeometry and Applications", December 14-15, 2017, University of Luxembourg.
- *On Lie's result about integrability of vector fields by quadratures*, contributed talk at the conference 'Dynamics and integrability of nonholonomic and other non-Hamiltonian systems', 24-27 January, 2018 - Dipartimento di Matematica Tullio Levi-Civita, Università degli Studi di Padova.
- \mathbb{Z}_2^n -*supermanifolds*, invited talk at the conference 'Classical and Quantum Physics: Geometry, Dynamics and Control. 60 Years Alberto Ibort Fest', 5 - 9 March, Madrid 2018.
- *On a Lie's theorem about integrability by quadratures*, invited talk at the conference 'Group Analysis of Differential Equations and Integrable Systems', Ninth Workshop (June 1014, 2018, Larnaca, Cyprus)
- *On a Lie's theorem about integrability of quadratures*, contributed talk at the conference 'The 32nd International Colloquium on Group Theoretical Methods in Physics (Group32)', Czech Technical University in Prague, Czech Republic, 9-13.07.2018.
- *Solvability implies integrability*, plenary talk at the conference 'XXVII International Fall Workshop on Geometry and Physics', Sevilla (Spain), 3-7 September 2018.
- *Remarks on contact geometry*, plenary talk at the conference 'Poisson Geometry and Higher Structures', Istituto Nazionale di Alta Matematica, Roma (Italy), 10-14 September, 2018.

VIII. TEACHING EXPERIENCES

- More than 20 years of teaching in the Faculty of Mathematics, Informatics and Mechanics, Warsaw University: lectures and exercises on Calculus I,II, III, Functional Analysis, Differential Geometry, Analytical Mechanics, etc.
- Classes on Mathematics (Linear Algebra and Calculus) in the Faculty of Management and Administration, Warsaw University.
- Seminars on Differential Geometry and Mathematical Methods of Physics at the Institute of Mathematics, Polish Academy of Sciences.
- Courses in Probability and Mathematical Statistics, Differential Geometry, and Analysis on Manifolds in the Faculty of Mathematics and Natural Sciences, College of Sciences, Cardinal Stefan Wyszyński University, Warsaw.

IX. MEMBER OF EDITORIAL BOARDS

1. *Banach Center Publications* (Warsaw) – Editor (2006-2010).
2. *Dissertationes Mathematicae* (Warsaw) – Editor.
3. *Extracta Mathematicae* (Universidad Badajoz, Spain).
4. *Journal of Geometric Mechanics* (AIMS, USA).

X. OTHER EXPERIENCES

- The Chair of the mathematical panel ERC (PE1) of Starting Grants, European Research Council 2010/2011, 2012/2013 and 2014/2015.
- Scientific Secretary of the Stefan Banach International Mathematical Center, 2006-2009.
- Member of the EPDI panel – the post-doc panel of the European Post-Doc Institutes.
- convantor of the Polish-Spanish joint research project within a cooperation agreement between PAN and CSIC (Consejo Superior de Investigaciones Científicas) for the years 2009-2010 and 2011-2012, "GEOMETRY OF CONSTRAINTS AND CONTROL".
- Member of the Scientific Council of the Institute of Mathematics, Polish Academy of Sciences.
- Member of the Scientific Council of the Center for Theoretical Physics, Polish Academy of Sciences.

XI. DISTINCTIONS

- Gold Cross of Merit, 2008.