

# CURRICULUM VITAE

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## PERSONAL DATA

Name Markus Schöberl (Dipl.-Ing. Dr.techn)  
Date of birth: 15.10.1978  
Place of birth: A-5020 Salzburg  
Citizenship: Austria  
Marital status married to Tereza, Children: Nikolas and Tobias



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## ACADEMIC CAREER

10/2014 Habilitation in Control Systems Technology and Control Theory at the Johannes Kepler University Linz, defense: October 10th, 2014  
05/2007 Dissertation (Ph.D) in Control theory (Dr.techn.) at the Johannes Kepler University Linz defense: May 16th, 2007  
04/2004 Diploma (Dipl.-Ing.) in Mechatronics at the Johannes Kepler University Linz

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## EMPLOYMENT

since 10/2014 Associate Professor at the Institute of Automatic Control and Control Systems Technology, Johannes Kepler University Linz (JKU)  
05/2014-09/2014 University assistant at the Institute of Automatic Control and Control Systems Technology, Johannes Kepler University Linz (JKU)  
04/2011-04/2014 Lecturer at the Institute of Automatic Control and Control Systems Technology, Johannes Kepler University Linz (JKU)  
10/2007-03/2011 University assistant at the Institute of Automatic Control and Control Systems Technology, Johannes Kepler University Linz (JKU)  
01/2007-09/2007 Scientific research assistant at the Institute of Automatic Control and Control Systems Technology, Johannes Kepler University Linz (JKU)

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## AWARDS, GRANTS AND FUNDED PROJECTS

2004 DOC Scholarship of Austrian Academy of Sciences (12/2004 - 11/2006)  
2007 Fred Margulies Award for dissertation  
2011 APART fellowship of Austrian Academy of Sciences (04/2011 - 03/2014)  
2017 FWF Project P - 29964: System-theoretic Analysis and Controller Design for PDEs (05/2017 - 04/2021)

# PROFESSIONAL SERVICE

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## INTERNATIONAL PROGRAM COMMITTEE

1. 2nd IFAC Workshop on Control of Systems Governed by Partial Differential Equations, 2016
  2. 5th IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control, 2015
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## PHD-COMMITTEE

1. Carsten Knoll: Technical University of Dresden, 2016
  2. Bernd Kolar: JKU, Linz, 2017
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## ORGANIZED CONFERENCE SESSIONS

1. Distributed parameter systems - new methods for modelling and control, *8th Vienna International Conference on Mathematical Modelling*, Vienna, 2015, together with Kurt Schlacher.
  2. Geometric Structures for the Modelling, Analysis and Discretization of Infinite-Dimensional Port-Hamiltonian Systems, *21st International Symposium on Mathematical Theory of Networks and Systems (MTNS)*, 2014. Mini-Course, together with Alessandro Macchelli.
  3. Stability and Stabilization of Distributed Port-Hamiltonian Systems, *21st International Symposium on Mathematical Theory of Networks and Systems (MTNS)*, 2014. Mini-Course, together with Alessandro Macchelli.
  4. Modelling, Analysis and Control of Distributed Parameter Systems, *6th Vienna International Conference on Mathematical Modelling*, Vienna, 2009, together with Kurt Schlacher.
  5. Distributed Parameter Systems, Control Methods for Structures and Machines, *4th European Conference on Structural Control*, St. Petersburg, 2008, together with Kurt Schlacher.
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## REFEREEING ACTIVITIES

*Journals:* Automatica, IEEE Transactions on Automatic Control, Systems & Control Letters, European Journal of Control, SIAM Journal on Control and Optimization, International Journal of Control, IMA Journal of Mathematical Control and Information, Acta Mechanica, Applied Mathematical Modelling, Mathematical and Computer Modelling of Dynamical Systems, Control Engineering Practice, Mechatronics, at-automatisierungstechnik, Journal of Systems and Control Engineering, IET Control Theory & Applications, Mechanical Sciences, International Journal of Systems Science.

*Conferences:* IEEE Conference on Decision and Control (CDC), 2011, 2012, 2013, 2015, 2016; American Control Conference (ACC), 2013, 2015; IFAC Workshop on Control of Systems Governed by Partial Differential Equations (CPDE), 2013, 2016; IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control (LHMNLC), 2012; International Symposium on Mathematical Theory of Networks & Systems (MTNS), 2010, 2014; IFAC Symposium on Nonlinear Control Systems (NOLCOS), 2010, 2013, 2016; IFAC World Congress (IFAC WC), 2011, 2014; European Control Conference (ECC), 2009, 2011, 2013, 2014, 2015, 2016; Vienna International Conference on Mathematical Modelling (MATHMOD), 2015; SIAM Conference on Control and Its Applications (SIAM

CT15), 2015; IFAC Conference on Modelling, Identification and Control of Nonlinear Systems (MICNON), 2015; IFAC Symposium on Control, Optimization and Automation in Mining, Mineral and Metal Processing (MMM) 2016, African Control Conference 2017;

## TEACHING

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### JKU-LINZ

- Courses:            Prozessautomatisierung 1 (Control System Technology 1), since 2009  
                      Prozessautomatisierung 2 (Control System Technology 2), since 2009  
                      Seminar Kontrolltheorie (Seminar on Control Theory), 2014, 2015  
                      Ausgewählte Kapitel der Regelungstheorie (Selected topics in control theory), 2015, 2016
- Exercises:         Automatisierungstechnik 1 Übungen (Automatic Control 1), 2005-2010, 2015  
                      Automatisierungstechnik 2 Übungen (Automatic Control 2), 2007, 2010, 2014, 2015  
                      Regelung nichtlinearer mechatronischer Systeme 2 Übungen (Nonlinear Control of Mechatronic Systems 2), 2007, 2008, 2014, 2015  
                      Moderne Frequenzbereichsmethoden Übungen (Modern Frequency Domain Methods in Control), 2009-2010
- Practicals:         Automatisierungstechnik Praktikum (Practical Training in Automatic Control), 2006-2010, 2014, 2015, 2016  
                      Prozessautomatisierung 1 Praktikum (Control System Technology 1), 2007-2008  
                      Prozessautomatisierung 2 Praktikum (Control System Technology 2), 2008
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### DIPLOMA(MASTER) THESIS CO-ADVISOR

- 2008                Siuka Andreas: Analysis and Control of Underactuated Mechanical Systems by Energy Shaping Methods
- 2009                Lederhilger Martin: Modellbildung und Analyse des Verdampfungskühlsystems eines Hubbalkenofens
- 2009                Angerer Alfred: Modellbildung und Steuerung der Kühlstrecke des Warmwalzsimulators
- 2011                Griebler Leopold: Fahrstrategieoptimierung bei Nutzfahrzeugen mit Hilfe vorausschauender Informationen
- 2011                Hofmair Matthias: Analyse der Wirkkette Funktionale Reifeneigenschaften - Fahrdynamik Gesamtfahrzeug
- 2011                Almer Daniel: Modellbasierte Temperaturregelung für einen Glühsimulator
- 2014                Rams Hubert: Analyse und Regelung verteilt-parametrischer Systeme

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## MASTER THESIS ADVISOR

- 2016 Hinterbichler Christoph: Studie zur Anwendbarkeit regelungstechnischer Methoden in der Digitalhydraulik
- 2017 Speletz Richard: Vorsteuerentwurf und Trajektorienfolgeregelung am Labormodell Wagen mit Einfachpendel
- 2017 Malzer Tobias: Energy based Control and Swing Up of the Furuta Pendulum

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## PUBLICATIONS

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### JOURNAL ARTICLES (INTERNATIONAL)

1. M. Schöberl, K. Schlacher: Lagrangian and hamiltonian formulation for infinite-dimensional systems - a variational point of view. *Mathematical and Computer Modelling of Dynamical Systems*, 23(1), pp. 89-103, 2017.
2. H. Rams, M. Schöberl, K. Schlacher, Optimal Motion Planning and Energy-based Control of a Single Mast Stacker Crane, *Transactions on Control Systems Technology*, 2017, accepted.
3. M. Schöberl, K. Schlacher, On an implicit triangular decomposition of nonlinear control systems that are 1-flat - a constructive approach, *Automatica*, 50(6), pp. 1649-1655, 2014.
4. M. Schöberl, A. Siuka, Jet bundle formulation of infinite-dimensional port-Hamiltonian systems using differential operators, *Automatica* 50(2), pp. 607-613, 2014.
5. M. Schöberl, A. Siuka, On Casimir Functionals for infinite-dimensional Port-Hamiltonian Control Systems, *IEEE Transactions on Automatic Control*, 58(7), pp. 1823-1828, 2013.
6. M. Schöberl, K. Schlacher, On an intrinsic formulation of time-variant Port Hamiltonian systems, *Automatica*, 48(9), pp. 2194-2200, 2012.
7. A. Siuka, M. Schöberl, K. Schlacher, Port-Hamiltonian Modelling and Energy based Control of the Timoshenko Beam, *Acta Mechanica* 222(1-2), pp. 69-89, 2011.
8. M. Schöberl, K. Schlacher, First order Hamiltonian Field Theory and Mechanics, *Mathematical and Computer Modelling of Dynamical Systems*, 17(1) Taylor & Francis, pp. 105-121, 2011.
9. A. Siuka, M. Schöberl, Applications of energy based control methods for the inverted pendulum on a cart, *Robotics and Autonomous Systems*, 57(10), pp. 1012-1017, 2009.
10. M. Schöberl, H. Ennsbrunner, K. Schlacher, Modelling of piezoelectric structures - a Hamiltonian approach, *Mathematical and Computer Modelling of Dynamical Systems*, 14(3), Taylor & Francis, pp. 179-193, 2008.
11. M. Fliess, S. Fuchshumer, M. Schöberl, K. Schlacher, H. Sira-Ramirez, An Introduction to Algebraic Discrete-Time Linear Parametric Identification with a Concrete Application, *Journal Européen des Systèmes Automatisés*, 42(2-3), pp. 211-232, 2008.
12. M. Schöberl, K. Schlacher, Covariant formulation of the governing equations of continuum mechanics in an Eulerian description, *Journal of Mathematical Physics*, 48(5), pp. 052902-1-052902-15, 2007.

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## JOURNAL ARTICLES (NATIONAL)

1. H. Rams, M. Schöberl, Energiebasierte Regelung von verteilt-parametrischen Hamiltonschen Systemen mit Hamiltonschen Dichten zweiter Ordnung, *at-Automatisierungstechnik*, 65(5), pp. 323-336, 2017.
2. B. Kolar, M. Schöberl, K. Schlacher, Eine Normalform für eine spezielle Klasse flacher nichtlinearer zeitdiskreter Mehrgrößensysteme, *at-Automatisierungstechnik*, 64(8), pp. 586-601, 2016.
3. M. Schöberl, Differentialgeometrische Beschreibung und Analyse Tor-basierter Hamilton'scher Systeme, *at-Automatisierungstechnik*, 63(9), pp. 672-683, 2015.
4. M. Schöberl, K. Schlacher, Lagrange'sche und Hamilton'sche Beschreibung partieller Differentialgleichungen, *at-Automatisierungstechnik*, 63(8), pp. 570-583, 2015.
5. M. Schöberl, K. Schlacher, Eine Normalform für eine spezielle Klasse flacher nichtlinearer Mehrgrößensysteme in Pfaffischer Systemdarstellung, *at-Automatisierungstechnik*, 62(7), pp. 463-474, 2014.
6. K. Schlacher, M. Schöberl, Geometrische Darstellung nichtlinearer Systeme, *at-Automatisierungstechnik*, 62(7), pp. 452-462, 2014.
7. M. Schöberl, K. Schlacher, Zur konstruktiven Berechnung flacher Ausgänge für nichtlineare Systeme, *at-Automatisierungstechnik*, 60(8), pp. 452-461, 2012.
8. A. Siuka, M. Schöberl, K. Rieger, K. Schlacher, Regelung verteilt-parametrischer Hamiltonscher Systeme auf Basis struktureller Invarianten, *at-Automatisierungstechnik* 59(8), pp. 465-478, 2011.

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## BOOKS

1. Contributions to the Analysis of Structural Properties of Dynamical Systems in Control and Systems Theory - A Geometric Approach, in *Modellierung und Regelung komplexer dynamischer Systeme*: Shaker Verlag, Aachen, 2014, ISBN: 978-3-84402-9673
2. Geometry and Control of Mechanical Systems: An Eulerian, Lagrangian and Hamiltonian Approach, in *Modellierung und Regelung komplexer dynamischer Systeme*: Shaker Verlag, Aachen, 2008, ISBN: 978-3-8322-7240-1.

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## BOOK CHAPTERS

1. M. Schöberl, K. Schlacher, Variational Principles for Different Representations of Lagrangian and Hamiltonian Systems, *Dynamics and Control of Advanced Structures and Machines*, Springer International Publishing, pp. 65-73, 2017, ISBN: 978-3-319-43079-9.
2. M. Schöberl, K. Schlacher, On Geometric Properties of Triangularizations for Nonlinear Control Systems, *Mathematical Control Theory I*, Lecture Notes in Control and Information Sciences, Vol. 461, Springer International Publishing, pp. 237-255, 2015, ISBN: 978-3-319-20987-6.
3. K. Schlacher, M. Schöberl, Observability and Reachability, a Geometric Point of View, *Mechanics and Model-Based Control of Advanced Engineering Systems*, pp 265-273, 2014, Springer, ISBN 978-3-7091-1570-1.

4. M. Schöberl, A. Siuka, Modelling and Control of infinite-dimensional Mechanical Systems - A port-Hamiltonian Approach, *Multibody Systems Dynamics, Robotics and Control*, pp. 75-94, 2013, Springer, ISBN: 978-3709112885.
5. K. Schlacher, M. Schöberl, M. Staudecker, Flatness Based Control of Linear and Nonlinear Systems, *Advanced Dynamics and Model-Based Control of Structures and Machines*, pp. 195-203, 2011, Springer, ISBN: 978-3-7091-0796-6.

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## CONFERENCE PROCEEDINGS

1. H. Rams, M. Schöberl, On Structural Invariants in the Energy Based Control of Port-Hamiltonian Systems with Second-Order Hamiltonian, *American Control Conference (ACC)*, Seattle, pp. 1139-1144, 2017.
2. B. Kolar, A. Kaldmäe, M. Schöberl, Ü. Kotta, K. Schlacher, Construction of Flat Outputs of Nonlinear Discrete-Time Systems in a Geometric and an Algebraic Framework, *10th IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, Monterey, CA, USA, pp. 808-813, 2016.
3. B. Kolar, M. Schöberl, K. Schlacher, Properties of Flat Systems with regard to the Parameterization of the System Variables by the Flat Output, *10th IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, Monterey, CA, USA, pp. 826-831, 2016.
4. H. Rams, M. Schöberl, K. Schlacher, Local Decomposition and Accessibility of Nonlinear Infinite-Dimensional Systems, *2nd IFAC Workshop on Control of Systems Governed by Partial Differential Equations (CPDE)*, Bertinoro, Italy, pp. 170-175, 2016.
5. B. Kolar, M. Schöberl, K. Schlacher, A Decomposition Procedure for the Construction of Flat Outputs of Discrete-Time Nonlinear Control Systems, *22nd International Symposium on Mathematical Theory of Networks & Systems (MTNS)*, Minneapolis, MN, USA, pp. 775-782, 2016.
6. M. Schöberl, K. Schlacher, Port-Hamiltonian representation for pdes with second-order derivatives in the energy density, *Proceedings in Applied Mathematics and Mechanics (PAMM)*, Volume 16, Number 1, pp. 19-22, 2016.
7. H. Rams, M. Schöberl, K. Schlacher, Local Decompositions of Second Order Infinite-Dimensional Systems, *Proceedings in Applied Mathematics and Mechanics (PAMM)*, Volume 16, Number 1, pp. 825-826, 2016.
8. B. Kolar, M. Schöberl, K. Schlacher, Some Remarks concerning Flatness and the Parameterization of the System Variables by a Flat Output, *Proceedings in Applied Mathematics and Mechanics (PAMM)*, Volume 16, Number 1, pp. 811-812, 2016.
9. R. Haas, C. Hinterbichler, E. Lukachev, M. Schöberl, Optimal Digital Hydraulic Feed-Forward Control Applied to Simple Cylinder Drives, *Proceedings of the Eight Workshop on Digital Fluid Power Tampere*, Finland, 2016.
10. M. Schöberl, K. Schlacher, Port-Hamiltonian formulation for Higher-order PDEs, *5th IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control*, Lyon, France, 2015, IFAC-PapersOnLine, Volume 48, Issue 13, pp. 244-249.
11. B. Kolar, M. Schöberl, K. Schlacher, Remarks on a Triangular Form for 1-Flat Pfaffian Systems with Two Inputs, *1st IFAC Conference on Modelling, Identification and Control of Nonlinear Systems (MICNON)*, Saint Petersburg, Russia, 2015, IFAC-PapersOnLine, Volume 48, Issue 11, pp. 109-114.

12. K. Schlacher, M. Schöberl, B. Kolar, A Jet Space Approach to Derive Flat Outputs, *1st IFAC Conference on Modelling, Identification and Control of Nonlinear Systems (MICNON)*, Saint Petersburg, Russia, 2015, IFAC-PapersOnLine, Volume 48, Issue 11, pp. 131-136.
13. M. Schöberl, K. Schlacher, Lagrangian and Port-Hamiltonian formulation for Distributed-parameter systems, *8th Vienna Symposium on Mathematical Modelling (MATHMOD)*, Vienna, Austria, 2015, IFAC-PapersOnLine, Volume 48, Issue 1, pp. 610-615.
14. K. Schlacher, M. Schöberl, A Jet Space Approach to Check Pfaffian Systems for Flatness, *52nd IEEE Conference on Decision and Control (CDC)*, Florence, Italy, pp. 2576-2581, 2013.
15. M. Schöberl, A. Siuka, Analysis and Comparison of Port-Hamiltonian Formulations for Field Theories - demonstrated by means of the Mindlin plate, *European Control Conference (ECC)*, Zürich, Switzerland, pp. 548-553, 2013.
16. M. Schöberl, A. Siuka, On the port-Hamiltonian representation of systems described by partial differential equations, *4th IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control*, Bertinoro, Italy, pp. 1-6, 2012.
17. M. Schöberl, K. Schlacher, On calculating flat outputs for Pfaffian systems by a reduction procedure - demonstrated by means of the VTOL example, *9th IEEE International Conference on Control & Automation, ICCA'11*, Santiago, Chile, pp. 477-482, 2011.
18. M. Schöberl, A. Siuka, On Casimir Functionals for Field Theories in Port-Hamiltonian Description for Control Purposes, *50th IEEE Conference on Decision and Control (CDC)*, Orlando, pp. 7759-7764, 2011.
19. K. Rieger, M. Schöberl, K. Schlacher, Local Decomposition and Accessibility of PDE Systems, *49th IEEE Conference on Decision and Control (CDC)*, Atlanta, pp. 6271-6276, 2010.
20. M. Schöberl, A. Siuka, K. Schlacher, Geometric Aspects of First Order Field Theories in Piezoelectricity and Magneto-hydrodynamics, *International Conference on Electromagnetics in Advanced Applications*, Sydney (ICEAA), IEEE xplore pp. 55-58, 2010.
21. H. Seyrkammer, D. Almer, S. Fuchshumer, K. Rieger, M. Schöberl, K. Schlacher, Flatness-based Temperature Control of Metal Sheets, *Proceedings 5th IFAC Symposium on Mechatronic Systems*, pp 8-15, 2010.
22. M. Schöberl, K. Schlacher, On parametrizations for a special class of nonlinear systems, *IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, pp. 1261-1266, Bologna, 2010.
23. K. Weichinger, S. Fuchshumer, K. Schlacher, M. Schöberl, Modeling, analysis and control of coupled elastic structures with the focus on vibration attenuation, *5th World Conference on Structural Control and Monitoring (WCSCM)*, Tokyo, 2010.
24. M. Schöberl, K. Rieger, K. Schlacher, System parametrization using affine derivative systems, *19th International Symposium on Mathematical Theory of Networks & Systems (MTNS)*, pp. 1737-1743, Budapest, 2010.
25. A. Siuka, M. Schöberl, K. Schlacher, Hamiltonian Evolution Equations of inductionless Magneto-hydrodynamics, *19th International Symposium on Mathematical Theory of Networks & Systems (MTNS)*, pp. 1889-1896, Budapest, 2010.
26. M. Schöberl, K. Schlacher, Some remarks on affine derivative systems concerning flatness, *Proceedings in Applied Mathematics and Mechanics* 10(1), pp. 631-632, 2010.

27. M. Schöberl, K. Schlacher, Hamiltonian Field Theory and Mechanics, *Proceedings of the 6th Vienna International Conference on Mathematical Modelling (MATHMOD)*, pp. 950-957, 2009.
28. M. Schöberl, Some aspects of differential geometry in mechanics and electromagnetism, *Proceedings of the Workshop on Advanced Computational Electromagnetics*, pp. 267-287, Rome, 2009.
29. M. Schöberl, K. Schlacher, A Geometric Description Of Particle Mechanics Including Electromagnetism, *Proceedings of the 18th International Symposium on Mathematical Theory of Networks & Systems (MTNS)*, Blacksburg, 2008.
30. A. Siuka, M. Schöberl, Applications of Energy based Control Methods for the Inverted Pendulum on a Cart, Preprint-Proceedings 5th International Conference on Computational Intelligence, Robotics and Autonomous Systems (CIRAS), pp. 187-192, Linz, 2008.
31. M. Schöberl, K. Schlacher, Classical mechanics and electromagnetism - A covariant view, *CD-ROM Proceedings of the XXII International Congress of Theoretical and Applied Mechanics (ICTAM)*, Adelaide, 2008.
32. K. Schlacher, M. Schöberl, T. Rittenschober, Model based Control of Structures and Machines, a Dissipative and Internal Model based Approach, *4th European Conference on Structural Control (ECSC)*, Vol. 2, pp. 687-694, St. Petersburg, 2008.
33. M. Schöberl, Time Variant Hamiltonian Control Systems - A Covariant Approach, *Proceedings in Applied Mathematics and Mechanics*, 7(1), pp. 3030007-3030008, 2008.
34. K. Rieger, K. Schlacher, M. Schöberl, On the Accessibility of Distributed Parameter Systems, *Proceedings of the 17th World Congress IFAC*, Seoul, Korea, pp. 7743-7748, 2008.
35. R. Stadlmayr, M. Schöberl, K. Schlacher, A Combination of Feedforward and Feedback for the Control of the nonlinear Benchmark Inertia Wheel Pendulum, *Conference Proceedings European Control Conference 2007 (ECC)*, pp. 5802-5808, 2007.
36. K. Schlacher, M. Schöberl, Construction of Flat Outputs By Reduction and Elimination, *CD Proceedings IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, Pretoria, pp. 666-671, 2007.
37. K. Schlacher, M. Schöberl, Die Konstruktion flacher Ausgänge durch sukzessive Elimination und Reduktion, *Tagungsband 15. Steirisches Seminar über Regelungstechnik und Prozessautomatisierung*, in Institut für Regelungs- und Automatisierungstechnik, TU Graz, pp. 165-170, 2007.
38. M. Schöberl, R. Stadlmayr, K. Schlacher, Geometric Analysis of Time Variant Hamiltonian Control Systems, *CD Proceedings IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, Pretoria, pp. 1026-1031, 2007.
39. M. Schöberl, K. Schlacher, Geometric Analysis of Hamiltonian Mechanics using Connections, *Proceedings in Applied Mathematics and Mechanics*, 6(1), pp. 843-844, 2006.
40. M. Schöberl, K. Schlacher, Intrinsic Modeling of Mechanical Systems Based on Geometry, *CD Proceedings of the 5th Vienna Symposium on Mathematical Modelling (MATHMOD)*, 2006.
41. K. Schlacher, M. Schöberl, H. Ennsbrunner, Simple Elastic Systems, An Introduction Based on Geometry, *CD Proceedings of the 5th Vienna Symposium on Mathematical Modelling (MATHMOD)*, 2006.



# TALKS

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## CONTRIBUTED TALKS (PEER-REVIEWED CONFERENCES)

1. Analysis and Comparison of Port-Hamiltonian Formulations for Field Theories - demonstrated by means of the Mindlin plate, *European Control Conference (ECC)*, Zürich, Switzerland, 2013.
2. On the port-Hamiltonian representation of systems described by partial differential equations, *4th IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control*, Bertinoro, Italy, 2012.
3. On Casimir Functionals for Field Theories in Port-Hamiltonian Description for Control Purposes, *50th IEEE Conference on Decision and Control (CDC)*, Orlando, 2011.
4. On calculating flat outputs for Pfaffian systems by a reduction procedure - demonstrated by means of the VTOL example, *9th IEEE International Conference on Control & Automation, ICCA'11*, Santiago, Chile, 2011.
5. On parametrizations for a special class of nonlinear systems, *IFAC Symposium on Nonlinear Control Systems (NOLCOS)*, Bologna, Italy, 2010.
6. System parametrization using affine derivative systems, *19th International Symposium on Mathematical Theory of Networks & Systems (MTNS)*, Budapest, Hungary, 2010.
7. A Geometric Description Of Particle Mechanics Including Electromagnetism, *18th International Symposium on Mathematical Theory of Networks & Systems (MTNS)*, Blacksburg, United States, 2008.
8. Classical mechanics and electromagnetism - A covariant view, *XXII International Congress of Theoretical and Applied Mechanics (ICTAM)*, Adelaide, Australia, 2008.

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## CONTRIBUTED TALKS (CONFERENCES, WORKSHOPS)

1. Eine Dreieckszerlegung für nichtlineare zeitdiskrete Systeme, *GMA Fachausschuss*, Anif, Austria, 2015.
2. Normalformen für flache Systeme, *18. Workshop GAMM-Fachausschuss "Dynamik und Regelungstheorie"*, Hamburg, Germany, 2015.
3. Lagrange'sche und Port-Hamilton'sche Beschreibung verteilt-parametrischer Systeme, *GMA Fachausschuss*, Anif, Austria, 2014.
4. Exakte Linearisierung und Flachheit - Ein Zugang basierend auf Differentialformen, *GMA Fachausschuss*, Anif, Austria, 2013.
5. Zur Berechnung flacher Ausgänge für Pfaffsche Systeme, *GMA Fachausschuss*, Anif, Austria, 2011.
6. Some remarks on affine derivative systems concerning flatness, *81st Meeting of the International Association of Applied Mathematics and Mechanics*, Karlsruhe, Germany, 2010.
7. Hamiltonsche Systeme in evolutionärer und De Donder-Weyl Beschreibung, *GMA Fachausschuss*, Anif, Austria, 2009.

8. Geometric Analysis of Hamiltonian Mechanics using Connections, *77th Meeting of the International Association of Applied Mathematics and Mechanics*, Berlin, Germany, 2006.
  9. Zur Geometrie mechanischer Systeme, Dynamics and Control theory, *GAMM Fachausschuss*, Linz, Austria, 2005.
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#### INVITED TALKS AT CONFERENCES/WORKSHOPS

1. Variational Principles for Different Representations of Lagrangian and Hamiltonian Systems, *2nd International Workshop on Advanced Dynamics and Model Based Control of Structures and Machines*, Vienna, Austria, 2015.
  2. Port-Hamiltonian formulation for Higher-order PDEs, *5th IFAC Workshop on Lagrangian and Hamiltonian Methods for Non Linear Control*, Lyon, France, 2015.
  3. Lagrangian and Port-Hamiltonian formulation for Distributed-parameter systems, *8th Vienna Symposium on Mathematical Modelling (MATHMOD)*, Vienna, Austria, 2015.
  4. Port-Hamiltonian Systems on Jet Bundles, *Port-Hamiltonian Systems: Approximations, Theory and Practice, Lorentz Center Workshop*, Leiden, Netherlands, 2014.
  5. Modelling and control of infinite-dimensional mechanical systems - A port-Hamiltonian approach, *Multibody System Dynamics, Robotics and Control Workshop*, 2011, Linz.
  6. Geometric Aspects of First Order Field Theories in Piezoelectricity and Magnetohydrodynamics, *International Conference on Electromagnetics in Advanced Applications (ICEAA)*, Sydney, Australia, 2010.
  7. Hamiltonian Field Theory and Mechanics, *6th Vienna International Conference on Mathematical Modelling (MATHMOD)*, Vienna, Austria, 2010.
  8. Some aspects of differential geometry in mechanics and electromagnetism, *Workshop on Advanced Computational Electromagnetics*, Rome, Italy, 2009.
  9. Time Variant Hamiltonian Control Systems - A Covariant Approach, *6th International Congress on Industrial and Applied Mathematics*, Zürich, Switzerland, 2007.
  10. Intrinsic Modeling of Mechanical Systems Based on Geometry, *5th Vienna Symposium on Mathematical Modelling (MATHMOD)*, Vienna, Austria, 2006.
  11. Nonlinear Control of Mechanical Systems based on their Geometric Description, *RICAM (Johann Radon Institute for Computational and Applied Mathematics), Computational Mechanics Challenges Day*, Linz, 2005.
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#### SEMINAR TALKS AND LECTURES

1. Triangularisierung nichtlinearer Mehrgrößensysteme zur Bestimmung flacher Ausgänge, *EEI Kolloquium*, University Erlangen-Nürnberg, December 15th, 2014
2. Modelling of infinite-dimensional systems in a Hamiltonian framework. *MTNS 2014, Mini Course, Groningen*, July 8th, 2014.
3. Geometric Modelling, Analysis and Control of Infinite-Dimensional Port-Hamiltonian Systems, *DISC-Summer-school, University of Twente*, June 20th, 2013.

4. Analysis of Port-Hamiltonian Formulations for first-order Field-Theories, *Systems, Control and Applied Analysis Seminar, University of Groningen*, February 12th, 2013.
5. Constructive derivation of a normal form in triangular shape for flat Pfaffian systems, *CAS Seminar, Centre Automatique et Systèmes, Ecole de Mines, Paris*, July, 5th, 2012.

## MISCELLANEOUS

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### RESEARCH VISITS

- 06/2012-07/2012 Centre Automatique et Systèmes, Mines ParisTech, France, Prof. P. Rouchon and Prof. J. Levine (6 weeks)
- 02/2013 Groningen Center for Systems and Control, Netherlands, Prof. A. van der Schaft (2 weeks)
- 06/2013 Groningen Center for Systems and Control, Netherlands, Prof. A. van der Schaft (4 weeks)

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### MEMBERSHIP IN TECHNICAL COMMITTEES

- IFAC T.C. 2.3 Non-Linear Control Systems
- IFAC T.C. 2.6 Distributed Parameter Systems

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### ATTENDED WORKSHOPS/SUMMER SCHOOLS/COLLOQUIA

1. Algebraic Methods in Control: Theory and Practice, Lecturer: Prof. Michel Fliess, Linz, 2002.
2. Energy and Geometry in Nonlinear Control, Lecturer: Prof. Arjan van der Schaft, Linz, 2004.
3. Identification, State Reconstruction, and Generalized PI-Control, Lecturers: Prof. Michel Fliess, Prof. Herbertt Sira Ramirez, Munich, 2005.
4. Robust Autonomous Control: An Internal Model Approach, Lecturer: Prof. Alberto Isidori, Linz, 2006.
5. 11th International Summer School in Global Analysis and Applications, Lecturers: Prof. Janos Szenthe, Prof. Raffaele Vitolo, Spiska Stara Ves, 2006.
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