

Wissenschaftliche Publikationen:

PD Dr.-Ing. habil. Andreas Rauh (Stand: 15.12.2019)

ORCID-ID: 0000-0002-1548-6547

Begutachtete Kongressbeiträge

1. Rauh, Andreas; Briechle, Kai; Hanebeck, Uwe D.; Bamberger, Joachim; Hoffmann, Clemens: *Localization of DECT Mobile Phones Based on a New Nonlinear Estimation Technique*, Proc. of the SPIE AeroSense Symposium 2003, 5084, Orlando, USA, 2003.
2. Hanebeck, Uwe D.; Briechle, Kai; Rauh, Andreas: *Progressive Bayes: A New Framework for Nonlinear State Estimation*, Proc. of the SPIE AeroSense Symposium 2003, 5099, Orlando, USA, 2003.
3. Rauh, Andreas; Kletting, Marco; Aschemann, Harald; Hofer, Eberhard P.: *Application of Interval Arithmetic Simulation Techniques to Wastewater Treatment Processes*, Proc. of the IASTED Intl. Conference on Modelling, Identification, and Control MIC 2004, pp. 287–293, Grindelwald, Switzerland.
4. Kletting, Marco; Rauh, Andreas; Aschemann, Harald; Hofer, Eberhard P.: *Consistency Techniques for Simulation of Wastewater Treatment Processes with Uncertainties*, DVD-Proc. of the IFAC World Congress 2005, Prague, Czech Republic.
5. Aschemann, Harald; Rauh, Andreas; Kletting, Marco; Hofer, Eberhard P.; Gennat, Marc; Tibken, Bernd: *Interval Analysis and Nonlinear Control of Wastewater Plants with Parameter Uncertainty*, DVD-Proc. of the IFAC World Congress 2005, Prague, Czech Republic.
6. Rauh, Andreas; Kletting, Marco; Aschemann, Harald; Hofer, Eberhard P.: *Robust Controller Design for Bounded State and Control Variables and Uncertain Parameters Using Interval Methods*, Proc. of the Intl. Conference on Control and Automation ICCA'05, pp. 777–782, Budapest, Hungary.
7. Rauh, Andreas; Hanebeck, Uwe D.: *Nonlinear Moment-Based Prediction Step for Exponential Densities*, Proc. of the 44th IEEE Conference on Decision and Control and European Control Conference ECC 2005, pp. 1923–1928, Seville, Spain.
8. Auer, Ekaterina; Rauh, Andreas; Hofer, Eberhard P.; Luther, Wolfram: *Validated Modeling of Mechanical Systems with SMARTMOBILE: Improvement of Performance by VALENCIA-IVP*. Proc. of the Dagstuhl Seminar 06021: *Reliable Implementation of Real Number Algorithms: Theory and Practice*, Dagstuhl, Germany, 2006, Lecture Notes in Computer Science 5045, Springer-Verlag, pp. 1–27, 2008.
9. Kletting, Marco; Rauh, Andreas; Aschemann, Harald; Hofer, Eberhard P.: *Interval Observer Design for Nonlinear Systems with Uncertain Time-Varying Parameters*, Proc. of the 12th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2006, pp. 361–366, Miedzyzdroje, Poland.
10. Rauh, Andreas; Kletting, Marco; Aschemann, Harald; Hofer, Eberhard P.: *Interval Methods for Simulation of Dynamical Systems with State-Dependent Switching Characteristics*, Proc. of the IEEE Intl. Conference on Control Applications CCA 2006, pp. 355–360, Munich, Germany.
11. Aschemann, Harald; Rauh, Andreas; Kletting, Marco; Hofer, Eberhard P.: *Flatness-Based Control of a Simplified Wastewater Treatment Plant*, Proc. of the IEEE Intl. Conference on Control Applications CCA 2006, pp. 2243–2248, Munich, Germany.
12. Hofer, Eberhard P.; Rauh, Andreas: *Applications of Interval Algorithms in Engineering*, CD-Proc. of the 12th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN 2006, Duisburg, Germany, IEEE Computer Society, 2007.
13. Kletting, Marco; Rauh, Andreas; Aschemann, Harald; Hofer, Eberhard P.: *Interval Observer Design Based on Taylor Models for Nonlinear Uncertain Continuous-Time Systems*, CD-Proc. of the 12th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN 2006, Duisburg, Germany, IEEE Computer Society, 2007.
14. Rauh, Andreas; Auer, Ekaterina; Hofer, Eberhard P.: *VALENCIA-IVP: A Comparison with Other Initial Value Problem Solvers*, CD-Proc. of the 12th GAMM-IMACS International Symposium on

- Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN 2006, Duisburg, Germany, IEEE Computer Society, 2007.
- 15. Rauh, Andreas; Minisini, Johanna; Hofer, Eberhard P.: *Interval Techniques for Design of Optimal and Robust Control Strategies*, CD-Proc. of the 12th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN 2006, Duisburg, Germany, IEEE Computer Society, 2007.
 - 16. Rauh, Andreas; Kletting, Marco; Hofer, Eberhard P.: *Model-Based State and Parameter Estimation for Micro-Mechatronic Systems with Interval Bounded Uncertainties*, In A. Weckenmann (editor): CD-Proc. of the 10th CIRP Intl. Conference on Computer Aided Tolerancing, Reports from the Chair Quality Management and Manufacturing Metrology, QFM Report 16, Erlangen, Germany, 2007. Shaker Verlag, Aachen.
 - 17. Rauh, Andreas; Minisini, Johanna; Hofer, Eberhard P.: *Towards the Development of an Interval Arithmetic Environment for Validated Computer-Aided Design and Verification of Systems in Control Engineering*, Proc. of Dagstuhl Seminar 08021: *Numerical Validation in Current Hardware Architectures*, Vol. 5492 of Lecture Notes in Computer Science, Springer–Verlag, Dagstuhl, Germany, pp. 175–188, 2009.
 - 18. Rauh, Andreas; Auer, Ekaterina: *Applications of Verified DAE Solvers in Engineering*, Intl. Workshop on Verified Computations and Related Topics, COE Lecture Note Vol. 15: Kyushu University, pp. 88–96, Karlsruhe, Germany, 2009.
 - 19. Rauh, Andreas; Menn, Ingolf; Aschemann, Harald: *Robust Control with State and Disturbance Estimation for Distributed Parameter Systems*, Proc. of 15th Intl. Workshop on Dynamics and Control 2009, Tossa de Mar, Spain, pp. 135–142, 2009.
 - 20. Rauh, Andreas; Briechle, Kai; Hanebeck, Uwe D.: *Nonlinear Measurement Update and Prediction: Prior Density Splitting Mixture Estimator*, CD-Proc. of IEEE Intl. Conference on Control Applications CCA 2009, St. Petersburg, Russia, 2009.
 - 21. Rauh, Andreas; Minisini, Johanna; Aschemann, Harald: *Carleman Linearization for Control and for State and Disturbance Estimation of Nonlinear Dynamical Processes*, CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2009, Miedzyzdroje, Poland, 2009.
 - 22. Rauh, Andreas; Auer, Ekaterina; Aschemann, Harald: *Real-Time Application of Interval Methods for Robust Control of Dynamical Systems*, CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2009, Miedzyzdroje, Poland, 2009.
 - 23. Auer, Ekaterina; Rauh, Andreas: *Toward Definition of Systematic Criteria for the Comparison of Verified Solvers for Initial Value Problems*, Proc. of 8th Intl. Conference on Parallel Processing and Applied Mathematics PPAM 2009: *Parallel Processing and Applied Mathematics*, Vol. 6068 of Lecture Notes in Computer Science, Springer–Verlag, Wroclaw, Poland, pp. 408–418, 2010.
 - 24. Rauh, Andreas; Aschemann, Harald; Naumov, Velko: *Experimental Validation of Flatness-Based Control for Distributed Heating Systems*. In Proc. of Days of Mechanics, Varna, Bulgaria, pp. 91–95, ISSN 0861-9727, 2009.
 - 25. Rauh, Andreas; Auer, Ekaterina; Aschemann, Harald: *Development of a Quality Measure for the Characterization of Guaranteed Solution Sets to ODEs in Engineering*. CD-Proc. of 8th IFAC Symposium on Nonlinear Control Systems, Bologna, Italy, 2010.
 - 26. Grigoryev, Vladislav; Rauh, Andreas; Aschemann, Harald; Paschen, Mathias: *Development of a Neural Network-Based Controller for Ships*. Proc. of 1st Joint International Conference on Multibody System Dynamics, Lappeenranta, Finland, ISBN 978-952-214-778-3, 2010.
 - 27. Rauh, Andreas; Grigoryev, Vladislav; Aschemann, Harald; Paschen, Mathias: *Incremental Gain Scheduling and Sensitivity-Based Control for Underactuated Ships*. Proc. of 8th IFAC Conference on Control Applications in Marine Systems, CAMS 2010, Rostock-Warnemünde, Germany, 2010.
 - 28. Aschemann, Harald; Rauh, Andreas: *Nonlinear Control and Disturbance Compensation for Underactuated Ships Using Extended Linearisation Techniques*. Proc. of 8th IFAC Conference on Control

- Applications in Marine Systems, CAMS 2010, Rostock-Warnemünde, Germany, 2010.
29. Rauh, Andreas; Minisini, Johanna; Aschemann, Harald: *Incremental Gain Scheduling and Eigenvalue Tracking for Robust Pole Assignment in Extended Linearization of Nonlinear Control Systems*. CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2010, Miedzyzdroje, Poland, 2010.
30. Rauh, Andreas; Aschemann, Harald: *Sensitivity-Based Feedforward and Feedback Control Using Algorithmic Differentiation*. CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2010, Miedzyzdroje, Poland, 2010.
31. Aschemann, Harald; Rauh, Andreas; Prabel, Robert: *Nonlinear Control of a Pressurised Water Supply Driven by a Permanent Magnet Synchronous Motor*. CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2010, Miedzyzdroje, Poland, 2010.
32. Rauh, Andreas; Weitschat, Roman; Aschemann, Harald: *Modellgestützter Beobachterentwurf zur Betriebszustands- und Alterungserkennung für Lithium-Ionen-Batterien*, 7. VDI-Tagung Innovative Fahrzeugantriebe, Dresden, Germany, VDI-Berichte 2105: *Innovative Fahrzeugantriebe 2010 Die Vielfalt der Mobilität: Vom Verbrenner bis zum E-Motor*, pp. 105–114, 2010.
33. Rauh, Andreas; Senkel, Luise; Dittrich, Christina; Aschemann, Harald: *Sensitivitätsanalyse zur Entwicklung robuster nichtlinearer Regelungsstrategien für energieeffiziente Pumpensysteme in der Gebäudewasserversorgung*, in Tagungsband Mechatronik 2011, T. Bertram, B. Corves, K. Janschek (Hrsg.), Dresden, Germany, pp. 315–320, 2011.
34. Rauh, Andreas; Kersten, Julia; Auer, Ekaterina; Aschemann, Harald: *Sensitivity Analysis for Reliable Feedforward and Feedback Control of Dynamical Systems with Uncertainties*, in Proc. of the 8th Intl. Conference on Structural Dynamics, EURODYN 2011, G. De Roeck, G. Degrande, G. Lombaert, G. Müller (eds.), Leuven, Belgium, pp. 2945–2952, 2011.
35. Rauh, Andreas; Siebert, Charlotte; Aschemann, Harald: *Verified Simulation and Optimization of Dynamic Systems with Friction and Hysteresis*, Proc. of ENOC 2011, Rome, Italy, 2011.
36. Rauh, Andreas; Dittrich, Christina; Senkel, Luise; Aschemann, Harald: *Sensitivity Analysis for the Design of Robust Nonlinear Control Strategies for Energy-Efficient Pressure Boosting Systems in Water Supply*, Proc. of 2011 IEEE Intl. Symposium on Industrial Electronics ISIE2011, Gdansk, Poland, pp. 1353–1358, 2011.
37. Rauh, Andreas; Krasnochtanova, Irina; Aschemann, Harald: *Quantification of Overestimation in Interval Simulations of Uncertain Systems*, CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2011, Miedzyzdroje, Poland, 2011.
38. Rauh, Andreas; Dötschel, Thomas; Aschemann, Harald: *Experimental Parameter Identification for a Control-Oriented Model of the Thermal Behavior of High-Temperature Fuel Cells*, CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2011, Miedzyzdroje, Poland, 2011.
39. Rauh, Andreas; Senkel, Luise; Dittrich, Christina; Aschemann, Harald: *Observer Design for State and Parameter Estimation in Pressure Boosting Systems for Water Supply*, CD-Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2011, Miedzyzdroje, Poland, 2011.
40. Rauh, Andreas; Dötschel, Thomas; Aschemann, Harald: *Parameter Identification Approaches for the Thermal Behavior of High-Temperature Fuel Cell Systems*, Mobile Robots and Mechatronic Systems, Moscow, Russia, 2011. ISBN 978-5-211-06273-3.
41. Aschemann, Harald; Rauh, Andreas; Prabel, Robert: *Nonlinear Observer-Based Control of a Pressurized Water Supply System*, Mobile Robots and Mechatronic Systems, Moscow, Russia, 2011. ISBN 978-5-211-06273-3.
42. Rauh, Andreas; Aschemann, Harald: *Sensitivity-Based State and Parameter Estimation for Lithium-Ion Battery Systems*, Proc. of IX. Intl. Conference System Identification and Control Problems, SI-CPRO'12, Moscow, Russia, 2012. ISBN 978-5-91450-098-3.

43. Meinke, Sebastian; Nocke, Jürgen; Hassel, Egon; Rauh, Andreas; Prabel, Robert; Aschemann, Harald: *Observer-Based Live Steam Temperature Control for a 550 MW hard coal Power Plant*, Proc. of IX. Intl. Conference System Identification and Control Problems, SICPRO'12, Moscow, Russia, 2012. ISBN 978-5-91450-098-3.
44. Dötschel, Thomas; Rauh, Andreas; Aschemann, Harald: *Reliable Control and Disturbance Rejection for the Thermal Behavior of Solid Oxide Fuel Cell Systems*, presented at MATHMOD 2012, Vienna, Austria, 2012. Available at IFAC-PapersOnLine.net.
45. Saurin, Vasily V.; Kostin, Georgy V.; Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *An Integrodifferential Approach to Adaptive Control Design for Heat Transfer Systems with Uncertainties*, presented at MATHMOD 2012, Vienna, Austria, 2012. Available at IFAC-PapersOnLine.net.
46. Kostin, Georgy V.; Saurin, Vasily V.; Aschemann, Harald; Rauh, Andreas: *Modeling and Optimization of Control Processes for Compressible Liquid Flow in Pipeline Systems*, presented at MATHMOD 2012, Vienna, Austria, 2012. Available at IFAC-PapersOnLine.net.
47. Kostin, Georgy V.; Rauh, Andreas; Saurin, Vasily V.; Aschemann, Harald: *Optimal Real-Time Control of Flexible Rack Feeders Using the Method of Integro-Differential Relations*, presented at MATHMOD 2012, Vienna, Austria, 2012. Available at IFAC-PapersOnLine.net.
48. Rauh, Andreas; Auer, Ekaterina; Dötschel, Thomas; Aschemann, Harald: *Interval Methods for Control-Oriented Modeling of the Thermal Behavior of High-Temperature Fuel Cell Stacks*, Proc. of 16th IFAC Symposium on System Identification SysID 2012, Brussels, Belgium, 2012.
49. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Sensitivity-Based State and Parameter Estimation for Fuel Cell Systems*, Proc. of 7th IFAC Symposium on Robust Control Design, Aalborg, Denmark, 2012.
50. Auer, Ekaterina; Kiel, Stefan; Rauh, Andreas: *Verified Parameter Identification for Solid Oxide Fuel Cells*, Proc. of 5th International Conference on Reliable Engineering Computing, Brno, Czech Republic, 2012. <http://rec2012.fce.vutbr.cz/proceedings.html>.
51. Rauh, Andreas; Senkel, Luise; Aschemann, Harald; Kostin, Georgy V.; Saurin, Vasily V.: *Reliable Finite-Dimensional Control Procedures for Distributed Parameter Systems with Guaranteed Approximation Quality*, Proc. of IEEE Multi-Conference on Systems and Control, Dubrovnik, Croatia, 2012.
52. Rauh, Andreas; Senkel, Luise; Aschemann, Harald; Nedialkov, Nedialko S.; Pryce, John D.: *Sensitivity Analysis for Systems of Differential-Algebraic Equations with Applications to Predictive Control and Parameter Estimation*, Proc. of IEEE Multi-Conference on Systems and Control, Dubrovnik, Croatia, 2012.
53. Leska, Maik; Grüning, Tobias; Aschemann, Harald; Rauh, Andreas: *Optimization of the Longitudinal Dynamics of Parallel Hybrid Railway Vehicles*, Proc. of IEEE Multi-Conference on Systems and Control, Dubrovnik, Croatia, 2012.
54. Rauh, Andreas; Aschemann, Harald: *Interval-Based Sliding Mode Control and State Estimation for Uncertain Systems*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2012, Miedzyzdroje, Poland, 2012.
55. Rauh, Andreas; Senkel, Luise; Dittrich, Christina; Aschemann, Harald: *Observer-Based Predictive Temperature Control for Distributed Heating Systems Based on the Method of Integrodifferential Relations*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2012, Miedzyzdroje, Poland, 2012.
56. Grüning, Tobias; Rauh, Andreas; Aschemann, Harald: *Feedforward Control Design for a Four-Rotor UAV using Direct and Indirect Methods*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2012, Miedzyzdroje, Poland, 2012.
57. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Modeling, Simulation and Control for Optimized Operating Strategies of Combustion Engine-Based Power Trains*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2012, Miedzyzdroje, Poland, 2012.

58. Rauh, Andreas; Dittrich, Christina; Aschemann, Harald; Nedialkov, Nedialko S.; Pryce, John D.: *A Differential-Algebraic Approach for Robust Control Design and Disturbance Compensation of Finite-Dimensional Models of Heat Transfer Processes*, In Proc. of IEEE International Conference on Mechatronics ICM 2013, Vicenza, Italy, 2013.
59. Rauh, Andreas; Senkel, Luise; Dittrich, Christina; Aschemann, Harald; Gałkowski, Krzysztof; Dąbkowski, Paweł: *A Sensitivity-Based Approach for the Control of Repetitive Processes*, In Proc. of IEEE International Conference on Mechatronics ICM 2013, Vicenza, Italy, 2013.
60. Cichy, Błażej; Gałkowski, Krzysztof; Rauh, Andreas; Aschemann, Harald: *Iterative Learning Control of the Electrostatic Microbridge Actuator*, In Proc. of European Control Conference ECC13, Zurich, Switzerland, 2013.
61. Rauh, Andreas; Dittrich, Christina, Aschemann, Harald: *The Method of Integro-Differential Relations for Control of Spatially Two-Dimensional Heat Transfer Processes*, In Proc. of European Control Conference ECC13, Zurich, Switzerland, 2013.
62. Dötschel, Thomas; Rauh, Andreas; Aschemann, Harald: *Experimental Validation of Interval-Based Sliding Mode Control for Solid Oxide Fuel Cell Systems*, In Proc. of European Control Conference ECC13, Zurich, Switzerland, 2013.
63. Leska, Maik; Grüning, Tobias; Aschemann, Harald; Rauh, Andreas: *Optimal Trajectory Planning for Standard and Hybrid Railway Vehicles with a Hydro-Mechanic Transmission*, In Proc. of European Control Conference ECC13, Zurich, Switzerland, 2013.
64. Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Interval-Based Sliding Mode Observer Design for Nonlinear Systems with Bounded Measurement and Parameter Uncertainty*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2013, Miedzyzdroje, Poland, 2013.
65. Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Experimental Validation of a Sensitivity-Based Observer for Solid Oxide Fuel Cell Systems*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2013, Miedzyzdroje, Poland, 2013.
66. Rauh, Andreas; Westphal, Ramona; Aschemann, Harald: *Verified Simulation of Control Systems with Interval Parameters Using an Exponential State Enclosure Technique*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2013, Miedzyzdroje, Poland, 2013.
67. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Design and Experimental Validation of Control Strategies for Commercial Gas Preheating Systems*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2013, Miedzyzdroje, Poland, 2013.
68. Rauh, Andreas; Aschemann, Harald; Nedialkov, Nedialko S.; Pryce, John D.: *Uses of Differential-Algebraic Equations for Trajectory Planning and Feedforward Control of Spatially Two-Dimensional Heat Transfer Processes*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2013, Miedzyzdroje, Poland, 2013.
69. Paszke, Wojciech; Aschemann, Harald; Rauh, Andreas; Gałkowski, Krzysztof; Rogers, Eric: *Two-Dimensional Systems Based Iterative Learning Control for High-Speed Rack Feeder Systems*, In Proc. of 8th Intl. Workshop on Multidimensional Systems nDS'13, Erlangen, Germany, 2013.
70. Rauh, Andreas; Senkel, Luise; Kersten, Julia; Aschemann, Harald: *Verified Stability Analysis for Interval-Based Sliding Mode and Predictive Control Procedures with Applications to High-Temperature Fuel Cell Systems*, Proc. of 9th IFAC Symposium on Nonlinear Control Systems, Toulouse, France, 2013.
71. Kiel, Stefan; Auer, Ekaterina; Rauh, Andreas: *Uses of GPU Powered Interval Optimization for Parameter Identification in the Context of SO Fuel Cells*, Proc. of 9th IFAC Symposium on Nonlinear Control Systems, Toulouse, France, 2013.
72. Rauh, Andreas; Gebhardt, Jovanka; Aschemann, Harald: *Guaranteed Stabilizing Control Strategies for Boom Cranes in Marine Applications*, Proc. of 2nd Intl. Conference on Control and Fault-Tolerant Systems, Nice, France, 2013.

73. Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Robust Estimation Procedures for the Operating Conditions of Battery Systems*, Proc. of 2nd Intl. Conference on Control and Fault-Tolerant Systems, Nice, France, 2013.
74. Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Optimal Input Design for Online State and Parameter Estimation using Interval Sliding Mode Observers*, Proc. of 52nd IEEE Conference on Decision and Control CDC 2013, Firenze, Italy, 2013.
75. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Variable Structure Approaches for Temperature Control of Solid Oxide Fuel Cell Stacks*, In CD-Proc. of 2nd Intl. Conference on Vulnerability and Risk Analysis and Management (ICVRAM) and 6th Intl. Symposium on Uncertainty Modeling and Analysis (ISUMA), Liverpool, UK, 2014.
76. Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Robust Sliding Mode Techniques for Control and State Estimation of Dynamic Systems with Bounded and Stochastic Uncertainty*, In CD-Proc. of 2nd Intl. Conference on Vulnerability and Risk Analysis and Management (ICVRAM) and 6th Intl. Symposium on Uncertainty Modeling and Analysis (ISUMA), Liverpool, UK, 2014.
77. Rauh, Andreas; Senkel, Luise; Gebhardt, Jovanka; Aschemann, Harald: *Stochastic Methods for the Control of Crane Systems in Marine Applications*, Proc. of European Control Conference ECC14, Strasbourg, France, 2014.
78. Leska, Maik; Prabel, Robert; Aschemann, Harald; Rauh, Andreas: *Optimal Operating Strategy for Hybrid Railway Vehicles based on a Sensitivity Analysis*, Proc. of 19th IFAC World Congress, Capetown, South Africa, 2014.
79. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Finite Volume and Finite Element Models for Real-Time Control and State Estimation of Two-Dimensional Heat Transfer Processes*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2014, Miedzyzdroje, Poland, 2014.
80. Rauh, Andreas; Ehret, Juliane; Aschemann, Harald: *Observer-Based Real-Time Frequency Analysis for Combustion Engine-Based Power Trains with Applications to Identification and Control*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2014, Miedzyzdroje, Poland, 2014.
81. Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Finite Element Modeling for Heat Transfer Processes Using the Method of Integro-Differential Relations with Applications in Control Engineering*, Proc. of IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2014, Miedzyzdroje, Poland, 2014.
82. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Verified Parameter Identification for Dynamic Systems with Non-Smooth Right-Hand Sides*, 16th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN2014, Würzburg, Germany, 2014. Vol. 9553 of Lecture Notes in Computer Science, pp. 236–246. Available at: http://www.scan2014.uni-wuerzburg.de/fileadmin/10030000/scan2014/talks/E2_3.pdf
83. Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Numerical Validation of Sliding Mode Approaches with Uncertainty*, 16th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN2014, Würzburg, Germany, 2014. Vol. 9553 of Lecture Notes in Computer Science, pp. 77-96 (Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Sliding Mode Approaches Considering Uncertainty for Reliable Control and Computation of Confidence Regions in State and Parameter Estimation*). Available at: http://www.scan2014.uni-wuerzburg.de/fileadmin/10030000/scan2014/talks/F1_2.pdf
84. Rauh, Andreas; Westphal, Ramona; Aschemann, Harald; Auer, Ekaterina: *Exponential Enclosure Techniques for Initial Value Problems with Multiple Conjugate Complex Eigenvalues*, 16th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN2014, Würzburg, Germany, 2014. Vol. 9553 of Lecture Notes in Computer Science, pp. 87–122. Available at: http://www.scan2014.uni-wuerzburg.de/fileadmin/10030000/scan2014/talks/C2_2_update2.pdf

85. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Computation of Confidence Regions in Reliable, Variable-Structure State and Parameter Estimation*, 16th GAMM-IMACS International Symposium on Scientific Computing, Computer Arithmetic, and Validated Numerics SCAN2014, Würzburg, Germany, 2014. Accepted for proceedings, Vol. 9553 of Lecture Notes in Computer Science (Senkel, Luise; Rauh, Andreas; Aschemann, Harald: *Sliding Mode Approaches Considering Uncertainty for Reliable Control and Computation of Confidence Regions in State and Parameter Estimation*). Available at: http://www.scan2014.uni-wuerzburg.de/fileadmin/10030000/scan2014/talks/C2_3.pdf
86. Rauh, Andreas; Krägenbring, Ole; Pröhle, Lukas; Aschemann, Harald: *Sensitivity-Based Approaches for an Efficient Design of Learning-Type Controllers of a Flexible High-Speed Rack Feeder System*, Proc. of IEEE Multi-Conference on Systems and Control, Antibes, France, 2014.
87. Rauh, Andreas; Warncke, Julia; Kostin, Georgy V.; Saurin, Vasily V.; Aschemann, Harald: *Finite Element Approaches for Real-Time Control and Observer Design of Flexible Rack Feeder Systems*, In Proc. of Vienna Intl. Conference on Mathematical Modelling MATHMOD 2015, Vienna, Austria, 2015.
88. Chu, Bing; Rauh, Andreas; Aschemann, Harald; Rogers, Eric: *Experimentally Verified Constrained ILC for a High Speed Rack Feeder*, Proc. of American Control Conference, ACC, Chicago, IL, USA, 2015.
89. Rauh, Andreas; Warncke, Julia; Kostin, Georgy V.; Saurin, Vasily V.; Aschemann, Harald: *Numerical Validation of Order Reduction Techniques for Finite Element Modeling of a Flexible Rack Feeder System*, Proc. of European Control Conference, ECC, Linz, Austria, 2015.
90. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Reliable Sliding Mode Approaches for the Temperature Control of Solid Oxide Fuel Cells with Input and Input Rate Constraints*, Proc. of 1st IFAC Conference on Modelling, Identification and Control of Nonlinear Systems, MICNON 2015, St. Petersburg, Russia, 2015.
91. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Robust Control for a Spatially Three-Dimensional Heat Transfer Process*, Proc. of 8th IFAC Symposium on Robust Control Design, ROCOND'15, Bratislava, Slovakia, 2015.
92. Mandra, Sławomir; Gałkowski, Krzysztof; Aschemann, Harald; Rauh, Andreas: *Guaranteed Cost Iterative Learning Control — An Application to Control of Permanent Magnet Synchronous Motors*, Proc. of 9th Intl. Workshop on Multidimensional Systems nDS'15, Vila Real, Portugal, 2015.
93. Aschemann, Harald; Rauh, Andreas: *An Integro-Differential Approach to Control-Oriented Modelling and Multivariable Norm-Optimal Iterative Learning Control for a Heated Rod*, Proc. of 20th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2015, Miedzyzdroje, Poland, 2015.
94. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Experimental Comparison of Interval-Based Parameter Identification Procedures for Uncertain ODEs with Non-Smooth Right-Hand Sides*, Proc. of 20th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2015, Miedzyzdroje, Poland, 2015.
95. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Experimental Validation of LMI Approaches for Robust Control Design of a Spatially Three-Dimensional Heat Transfer Process*, Proc. of 20th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2015, Miedzyzdroje, Poland, 2015.
96. Auer, Ekaterina; Senkel, Luise; Kiel, Stefan; Rauh, Andreas: *Performance of Simplified Interval Models for Simulation and Control of Solid Oxide Fuel Cells*, Proc. 4th Intl. Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering Computing, Prague, Czech Republic, 2015 (in Y. Tsompanakis; J. Kruis; B.H.V. Topping (Editors), Proceedings of the Fourth International Conference on Soft Computing Technology in Civil, Structural and Environmental Engineering. Civil-Comp Press, Stirlingshire, UK, Paper 3, 2015, doi:10.4203/ccp.109.3).
97. Rauh, Andreas; Aschemann, Harald: *Sensitivity-Based Approaches for an Efficient Design of Feed-forward Controllers and Parameter Estimators for a Distributed Heating System*, Proc. of 21st IEEE

- Intl. Conference on Methods and Models in Automation and Robotics MMAR 2016, Miedzyzdroje, Poland, 2016.
98. Rauh, Andreas; Tiede, Susann; Klenke, Cornelia: *Observer and Filter Approaches for the Frequency Analysis of Speech Signals*, Proc. of 21st IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2016, Miedzyzdroje, Poland, 2016.
99. Rauh, Andreas; Tiede, Susann; Klenke, Cornelia: *Stochastic Filter Approaches for a Phoneme-Based Segmentation of Speech Signals*, Proc. of 21st IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2016, Miedzyzdroje, Poland, 2016.
100. Reuter, Johannes; Mank, Enrico; Aschemann, Harald; Rauh, Andreas: *Battery State Observation and Condition Monitoring Using on-Line Minimization*, Proc. of 21st IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2016, Miedzyzdroje, Poland, 2016.
101. Rauh, Andreas; Senkel, Luise; Aschemann, Harald: *Interval Methods for Variable-Structure Control of Dynamic Systems with State Constraints*, Proc. of 3rd Intl. Conference on Control and Fault-Tolerant Systems, Barcelona, Spain, 2016.
102. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Interval-Based Implementation of Robust Variable-Structure and Backstepping Controllers of Single-Input Single-Output Systems*, Proc. of the 20th IFAC World Congress 2017, Toulouse, France.
103. Cichy, Błażej; Augusta, Petr; Gałkowski, Krzysztof; Rauh, Andreas; Aschemann, Harald; Rogers, Eric; Rehák, Branislav: *Modeling and Iterative Learning Control of a Circular Deformable Mirror*, Proc. of the IFAC World Congress 2017, Toulouse, France.
104. Cichy, Błażej; Gałkowski, Krzysztof; Rauh, Andreas; Aschemann, Harald; Rogers, Eric: *A Practically Tractable Iterative Learning Control Scheme for a Circular Deformable Mirror*, Proc. of 10th Intl. Workshop on Multidimensional (nD) Systems, nDS 2017, Zielona Góra, Poland.
105. Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Interval Methods for the Implementation and Verification of Robust Gain Scheduling Controllers*, Proc. of 22nd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2017, Miedzyzdroje, Poland, 2017.
106. Rauh, Andreas; Prabel, Robert; Aschemann, Harald: *Oscillation Attenuation for Crane Payloads by Controlling the Rope Length Using Extended Linearization Techniques*, Proc. of 22nd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2017, Miedzyzdroje, Poland, 2017.
107. Rauh, Andreas; Cont, Noël; Aschemann, Harald: *Experimental Validation of a Sensitivity-Based Learning-Type Controller for a Linear Time-Varying Model of a Flexible High-Speed Rack Feeder*, Proc. of 22nd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2017, Miedzyzdroje, Poland, 2017.
108. Rauh, Andreas; Tiede, Susann; Klenke, Cornelia: *Comparison of Different Filter Approaches for the Online Frequency Analysis of Speech Signals*, Proc. of 22nd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2017, Miedzyzdroje, Poland, 2017.
109. Kostin, Georgy V.; Rauh, Andreas; Aschemann, Harald; Saurin, Vasily V.: *Optimal Multivariate Flux Control of Heat Transfer in a Metal Bar*, Proc. of 22nd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2017, Miedzyzdroje, Poland, 2017.
110. Auer, Ekaterina; Kiel, Stefan; Rauh, Andreas: *Towards a Verified ODE Solver for GPU-Based Parameter Identification*, in C. Bucher, B.R. Ellingwood, D.M. Frangopol (eds.), Safety, Reliability, Risk, Resilience and Sustainability of Structures and Infrastructure, Proceedings of the 12th International Conference on Structural Safety and Reliability, Vienna, Austria, pp. 2039–2049, 2017.
111. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *An Interval Approach for Parameter Identification and Observer Design of Spatially Distributed Heating Systems*, In Proc. of Vienna Intl. Conference on Mathematical Modelling MATHMOD 2018, Vienna, Austria, 2018.
112. Kostin, Georgy V.; Rauh, Andreas; Aschemann, Harald: *Modeling, Experimental Identification, and Optimization of Heat Transfer in a Metal Bar Controlled by Peltier Elements*, In Proc. of Vienna

- Intl. Conference on Mathematical Modelling MATHMOD 2018, Vienna, Austria, 2018.
113. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *An Interval Observer Approach for the Online Temperature Estimation in Solid Oxide Fuel Cell Stacks*, 2018 European Control Conference, Limassol, Cyprus, 2018.
114. Rauh, Andreas; Schmidt, Matthew; Tiede, Susann; Klenke, Cornelia: *Stochastic Filter Techniques in Combination with Sliding Mode Differentiators As the Basis for a Reliable Neural Network-Based Recognition of Phonemes in Speech Signals*, 2018 European Control Conference, Limassol, Cyprus, 2018.
115. Mandra, Sławomir; Gałkowski, Krzysztof; Rogers, Eric; Aschemann, Harald; Rauh, Andreas: *Iterative Learning Control of a Distributed Heating System Described by a Non-Minimum Phase Model*, Proc. of 2018 American Control Conference, Milwaukee, USA, 2018.
116. Aschemann, Harald; Rauh, Andreas; Kostin, Georgy V.; Saurin, Vasily V.: *Multivariable Temperature Control of a Heated Rod by Using a Reduced-Order Internal MIDR-Model*, Proc. of 2018 American Control Conference, Milwaukee, USA, 2018.
117. Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *State-Space Transformations of Uncertain Systems with Purely Real and Conjugate-Complex Eigenvalues into a Cooperative Form*, Proc. of 23rd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2018, Miedzyzdroje, Poland, 2018.
118. Knyazkov, Dmitri; Aschemann, Harald; Kersten, Julia; Kostin, Georgy V.; Rauh, Andreas: *Modeling and Identification of Cylindrical Bodies with Free Convection and Peltier Elements for Active Heating*, Proc. of 23rd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2018, Miedzyzdroje, Poland, 2018.
119. Kostin, Georgy V.; Rauh, Andreas; Aschemann, Harald: *Model Decomposition and Optimal Flux Control in a Heat Transfer Structure with Peltier Elements*, Proc. of 23rd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2018, Miedzyzdroje, Poland, 2018.
120. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Linear Matrix Inequality Techniques for the Optimization of Interval Observers for Spatially Distributed Heating Systems*, Proc. of 23rd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2018, Miedzyzdroje, Poland, 2018.
121. Rauh, Andreas; Romig, Swantje; Aschemann, Harald: *When is Naive Low-Pass Filtering of Noisy Measurements Counter-Productive for the Dynamics of Controlled Systems?*, Proc. of 23rd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2018, Miedzyzdroje, Poland, 2018.
122. Saurin, Vasily V.; Rauh, Andreas; Aschemann, Harald: *On Control-Oriented Modeling in Heat Transfer Based on Projection Techniques and the Method of Integrodifferential Relations*, Proc. of 23rd IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2018, Miedzyzdroje, Poland, 2018.
123. Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Application-Based Discussion of Verified Simulations of Interval Enclosure Techniques*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
124. Gavrikov, Alexander; Kostin, Georgy V.; Knyazkov, Dmitri; Rauh, Andreas; Aschemann, Harald: *Experimental Validation of a Nonlinear Model for Controlled Thermoelectric Processes in Cylindrical Bodies*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
125. Knyazkov, Dmitri; Gavrikov, Alexander; Kostin, Georgy V.; Aschemann, Harald; Rauh, Andreas: *FEM Modeling and Parameter Identification of Thermoelectrical Processes in Cylindrical Bodies*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
126. Ifqir, Sara; Rauh, Andreas; Kersten, Julia; Ichalal, Dalil; Ait-Oufroukh, Naima; Mammar, Saïd: *Interval Observer-Based Controller Design for Systems with State Constraints: Application to Solid Oxide*

- Fuel Cells Stacks*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
- 127. Frenkel, Wiebke; Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Optimization Techniques for the Design of Identification Procedures for the Electro-Chemical Dynamics of High-Temperature Fuel Cells*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
 - 128. Gavrikov, Alexander; Kostin, Georgy V.; Knyazkov, Dmitri; Rauh, Andreas; Aschemann, Harald: *Parameter Optimization of Control with Feedback Linearization for a Model of Thermolectric Processes in Cylindrical Bodies*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
 - 129. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Techniques for Verified Reachability Analysis of Quasi-Linear Continuous-Time Systems*, Proc. of 24th IEEE Intl. Conference on Methods and Models in Automation and Robotics MMAR 2019, Miedzyzdroje, Poland, 2019.
 - 130. Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Transformation of Uncertain Linear Fractional Order Differential Equations Into a Cooperative Form*, Proc. of 8th IFAC Symposium on Mechatronic Systems (MECHATRONICS 2019) and the 11th IFAC Symposium on Nonlinear Control Systems (NOLCOS 2019), Vienna, Austria, 2019.
 - 131. Kostin, Georgy V., Rauh, Andreas; Gavrikov, Alexander; Knyazkov, Dmitri; Aschemann, Harald: *Heat Transfer in Cylindrical Bodies Controlled by a Thermolectric Convert*, Proc. of 8th IFAC Symposium on Mechatronic Systems (MECHATRONICS 2019) and the 11th IFAC Symposium on Nonlinear Control Systems (NOLCOS 2019), Vienna, Austria, 2019.
 - 132. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Iterative Learning Approaches for Discrete-Time State and Disturbance Observer Design of Uncertain Linear Parameter-Varying Systems*, Proc. of 8th IFAC Symposium on Mechatronic Systems (MECHATRONICS 2019) and the 11th IFAC Symposium on Nonlinear Control Systems (NOLCOS 2019), Vienna, Austria, 2019.
 - 133. Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Application-based Analysis of Transformations of Uncertain Dynamical Systems Into a Cooperative Form*, European Control Conference, St. Petersburg, Russia, 2020. Under review.
 - 134. Rauh, Andreas; John, Kristine; Bruschewski, Martin; Grundmann, Sven: *Comparison of Two Different Interval Techniques for Analyzing the Influence of Measurement Uncertainty in Compressed Sensing for Magnet Resonance Imaging*, European Control Conference, St. Petersburg, Russia, 2020. Under review.
 - 135. Rauh, Andreas; Kersten, Julia; Aschemann, Harald: *Interval-Based Verification Techniques for the Analysis of Uncertain Fractional-Order System Models*, European Control Conference, St. Petersburg, Russia, 2020. Under review.
 - 136. Hildebrandt, Erik; Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Robust Interval Observer Design for Fractional-Order Models with Applications to State Estimation of Batteries*, IFAC World Congress, Berlin, Germany, 2020. Under review.
 - 137. Cont, Noël; Frenkel, Wiebke; Kersten, Julia; Rauh, Andreas; Aschemann, Harald: *Interval-Based Modeling of High-Temperature Fuel Cells for a Real-Time Control Implementation Under State Constraints*, IFAC World Congress, Berlin, Germany, 2020. Under review.
 - 138. Gavrikov, Alexander; Kostin, Georgy V.; : *Interval-Based Modeling of High-Temperature Fuel Cells for a Real-Time Control Implementation Under State Constraints*, IFAC World Congress, Berlin, Germany, 2020. Under review.