

Curriculum Vitae of Prof. Dr. Georg Pelz (July 2023)

Personal Data:

Born:

At:

Nationality:

Address:

Academic Career:

Oct. 1983 – Dec. 1988	Diploma in Computer Science, University of Dortmund (magna cum laude)
May 1993	Ph.-D. at Gerhard-Mercator-University, Duisburg, Faculty of Electrical Engineering (summa cum laude), “A System for Physical Design Verification”
Feb. 2001	Habilitation at Gerhard-Mercator-University, Duisburg, Faculty of Electrical Engineering, “Modeling and Simulation of Mechatronic Systems with Hardware Description Languages”
Since March 2012	Honorary Professorship in Automotive Electronics at the University Duisburg-Essen, Faculty of Engineering

Professional Career:

Jan. 1989 – June 1993	Fraunhofer-Institute for Microelectronic Circuits and Systems, CAD department, Duisburg
July 1993 – June 1996	Gerhard-Mercator-University Duisburg, Post-Doc at Chair Electron Devices and Circuits
July 1996 – Sep. 2000	Gerhard-Mercator-University Duisburg, Primary Engineer (Oberingenieur) at Chair Electron Devices and Circuits, Lead of a group of three Ph.-D. students
Oct. 2000 – Jan. 2003	Infineon Technologies AG, Memory Products Development engineer / project manager in the development of disk drive electronics

Feb. 2003 – Aug. 2003	Infineon Technologies AG, Automotive Development engineer / project manager in the department of design methodology for automotive power
Sep. 2003 – Feb. 2019	Infineon Technologies AG, Automotive Head of the department of design methodology for automotive power
Feb. 2005 – March 2013	Infineon Technologies AG, Automotive Position on technical career path: Principal Design Methodology
Apr. 2013 – Sep. 2020	Infineon Technologies AG, Automotive Position on technical career path: Senior Principal Development Methodology Automotive Products
Since Oct. 2020	Infineon Technologies AG, Automotive Position on technical career path: Distinguished Engineer Development Methodology Automotive Products

Awards:

1991	Contribution [12] (see publication list) received a distinguished paper citation at IEEE International Conference on Computer-Aided Design of Integrated Circuits and Systems (ICCAD).
1992	Contribution [13] (see publication list) received a nomination for the best paper award at the ACM/IEEE Design Automation Conference (DAC).
2004	Contribution [49] (see publication list) was selected at the World Congress of the Society of Automotive Engineers to appear in the SAE Transactions.
2010	Contribution [68] (see literature list) received a best paper award at the ME2010
2014	Contribution [80] (see literature list) received a best paper award at the Forum on Specification and Design Languages FDL
2015	Contribution [93] (see literature list) received the Mentor Award at the International SoC Design Conference ISOCC
2016	Contribution [95] (see literature list) received the ST Microelectronics Life Augmented Best Poster Award at the IEEE Sensors Applications Symposium, SAS

- 2016 Contribution [103] (see literature list) received the EDA Competition Award Runner-Up at the International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design, SMACD
- 2018 Contribution [111] (see literature list) received a nomination for the best paper award at the IEEE Artificial Intelligence for Industries Conference
- 2018 Contribution [112] (see literature list) received a best student paper award at the International Semiconductor Conference CAS
- 2019 Contribution [119] (see literature list) received a Best Young Professional Poster Award at the IEEE International Conference on Electronics, Circuits and Systems, ICECS
- 2019 Contribution [120] (see literature list) received a Best Poster Award at the IEEE International Symposium for Design and Technology in Electronic Packaging, SIITME
- 2020 Contribution [133] (see literature list) received a Young Professionals Best Presentation Award at the IEEE International Conference on Electronics, Circuits and Systems, ICECS

Publications:**Ph.-D. thesis:**

- [1] *G. Pelz*, „Ein integriertes Programmsystem zur strukturellen Verifikation mikroelektronischer Schaltungsentwürfe“, Gerhard-Mercator-University, Duisburg, Faculty of Electrical Engineering, 1993.

Habilitation

- [2] *G. Pelz*, „Modellierung und Simulation mechatronischer Systeme mit Hardwarebeschreibungssprachen“, Gerhard-Mercator-University, Duisburg, Faculty of Electrical Engineering, 2001.

Monographies

- [3] *G. Pelz*, „Ein integriertes Programmsystem zur strukturellen Verifikation mikroelektronischer Schaltungsentwürfe“, VDI-Verlag, Düsseldorf, 1995
- [4] *G. Pelz*, „Modellierung und Simulation mechatronischer Systeme – vom Chip- zum Systementwurf mit Hardwarebeschreibungssprachen“, Hüthig-Verlag, Heidelberg, 2001
- [5] *L.M. Voßkämper, R. Schmid, G. Pelz*, „Modeling micro-mechanical Structures for System Simulations“, chapter in: System on Chip Design Languages - best of FDL'01 and HDLCon'01“, Editor: A. Mignotte, E. Villar, L. Horobin, Kluwer 2002.
- [6] *G. Pelz*, „Mechatronic Systems – Modeling and Simulation with HDLs“, John Wiley and Sons, 2003
- [7] *G. Pelz and M. Hell*, „Simulation von LIN-Clustern“, chapter in book “LIN-Bus“, Franzis, 2004.
- [8] *G. Pelz, P. Oehler, E. Fourgeau and C. Grimm*, „Automotive System Design and AUTOSAR“, chapter in: Advances in Design and Specification Languages for SoCs, Springer 2005.
- [9] *G. Pelz*, “systemas mecatrónicos – modelado y simulación con HDLs“, Limusa Wiley, 2006.
- [10] *M. Rafaila, C. Decker, C. Grimm, G. Pelz*, "Design of Experiments for Effective Pre-silicon Verification of Automotive Electronics", chapter in: Advances in Design Methods from Modeling Languages for Embedded Systems and SoC's – Selected Papers from FDL 2009, Springer, 2010.

Reviewed Publications

- [11] *G. Pelz, V. Meyer zu Bexten*, „Efficient Fracturing of All Angle Shaped VLSI Mask Pattern Data“, Integration, the VLSI Journal, 1991.
- [12] *G. Pelz, U. Röttcher*, „Circuit Comparison by Hierarchical Pattern Matching“, Proc. IEEE International Conference on Computer-Aided Design of Integrated Circuits and Systems, IEEE International Conference on Computer-Aided Design of Integrated Circuits and Systems (ICCAD), 1991, San Francisco.
- [13] *G. Pelz*, „An Interpreter for General Netlist Design Rule Checking“, Proc. ACM/IEEE Design Automation Conference (DAC), 1992, Los Angeles.
- [14] *J. Bielefeld, G. Pelz, H.-B. Abel, G. Zimmer*, „An SOI MOSFET Model for Circuit Simulators Considering Nonlinear Dynamic Self-heating“, Proc. IEEE Int. SOI Conference, 1994.

- [15] *G. Pelz, U. Röttcher*, „Pattern Matching and Refinement Hybrid Approach to Circuit Comparison“, IEEE Trans. on Computer-Aided Design of Integrated Circuits and Systems, Vol. 10, No. 2, Feb. 1994.
- [16] *G. Pelz, J. Bielefeld, F.-J. Zappe, G. Zimmer*, „MEXEL: Simulation of Microsystems in a Circuit Simulator using Automatic Electromechanical Modeling“, Proc. Micro System Technologies '94, Berlin.
- [17] *G. Pelz, J. Bielefeld, F.-J. Zappe, G. Zimmer*, „Simulating Micro-Electromechanical Systems“, IEEE Circuits and Devices Magazine: Simulation and Modeling, Editors: R. Saleh and A. Yang, March 1995.
- [18] *J. Bielefeld, G. Pelz, G. Zimmer*, „Analog Hardware Description Languages for Modeling and Simulation of Microsystems and Mechatronics“, Proc. 3. Conf. on Mechatronics and Robotics, Paderborn, B.G. Teubner, Ed. J. Lueckel, Stuttgart, 1995.
- [19] *G. Pelz, J. Bielefeld, G. Zimmer*, „Model Transformation for Coupled Electro-mechanical Simulation in an Electronics Simulator“, Springer Journal on Microsystem Technologies, Vol. 1, No. 4, Sep. 1995.
- [20] *J. Bielefeld, G. Pelz, G. Zimmer*, „Comparison of Electrical Device Representations of Physical Differential Equations“, 1st International Conference on Simulation and Design of Microsystems and Microstructures '95, Southhampton.
- [21] *J. Bielefeld, G. Pelz, H.-B. Abel, G. Zimmer*, „Dynamic Spice-Simulation of the Electrothermal Behaviour of SOI MOSFET's“, IEEE Transactions on Electron Devices, Vol. 42, No. 11, Nov. 1995.
- [22] *G. Pelz, J. Bielefeld, G. Hess, G. Zimmer*, „HW/SW-Cosimulation for Mechatronic System Design“, European Design Automation Conference, Geneva, Sep. 1996.
- [23] *G. Pelz, J. Bielefeld, G. Zimmer*, „Mechatronic System Simulation via analog and digital Hardware Description Languages“, Mechatronics '96, Guimaraes, Sep. 1996.
- [24] *J. Bielefeld, G. Pelz, G. Zimmer*, „Theoretical Foundations of the Model Transformation Approach“, Micro System Technologies '96, Potsdam, Sep. 1996.
- [25] *W. Schardein, R. Wittmann, D. Teßmann, R. Vahrmann, S. Kern, C. Wallner, A. Müller, G. Pelz*, „Ein hochflexibler Interpreter zur Analyse und Reduktion von Netzlisten“, GMM/ITG-Diskussionssitzung 'Entwicklung von Anlogschaltungen mit CAE-Methoden', 1996.
- [26] *G. Pelz, J. Bielefeld, G. Zimmer*, „Modeling of Embedded Software for Automotive Applications“, IEEE/VIUF Workshop on Behavioral Modeling and Simulation (BMAS), Washington D.C., 1997.
- [27] *J. Bielefeld, G. Pelz, G. Zimmer*, „AHDL-Model of a 2D Mechanical Finite-Element usable for Micro-Electro-Mechanical Systems“, IEEE/VIUF Workshop on Behavioral Modeling and Simulation (BMAS), Washington D.C., 1997, Poster.
- [28] *J. Bielefeld, G. Pelz, G. Zimmer*, „Electrical Network Formulations of Mechanical Finite-Element Models“, 2nd International Conference on Simulation and Design of Microsystems and Microstructures, Lausanne, 1997.
- [29] *G. Pelz, J. Bielefeld, G. Zimmer*, „Virtual Prototyping for a Camera Winder: a Case Study“, IEEE/VIUF Workshop on Behavioral Modeling and Simulation (BMAS), Orlando, FL, 1998.
- [30] *G. Pelz, J.-C. Laurent, H. Morel and B. Allard*, „Bondgraphen für die Simulation gemischter Systeme“, CADs 1, 1998.

- [31] *G. Pelz, T. Kowalewski, N. Pohlmann, G. Zimmer*, „Modeling of a Combustion Engine with Hardware Description Languages“, IEEE/VIUF Workshop on Behavioral Modeling and Simulation (BMAS), Orlando, FL, 1998.
- [32] *G. Pelz, M. Leineweber, G. Zimmer*, „Schaltungssimulation mit FE-Modellen für mikroelektromechanische Systeme“, it+ti, Themenheft Mikrosysteme, 4/99.
- [33] *G. Pelz, G. Zimmer*, „Entwicklung eines Kamerawinders am virtuellen Prototypen“, Multi Nature Systems 1999, Jena.
- [34] *L. Voßkämper, A. Lüdecke, M. Leineweber, G. Pelz*, „Electromechanical Modeling Beyond VHDL-AMS“, IEEE/ACM International Workshop on Behavioral Modeling and Simulation (BMAS), 1999.
- [35] *A. Lüdecke, H.-K. Trieu, G. Hoffmann, P. Weyand, G. Pelz*, „Modeling in Hardware Description Languages for the Simulation of Coupled Fluidic, Thermal and Electrical Effects“, IEEE/ACM International Workshop on Behavioral Modeling and Simulation (BMAS), 1999.
- [36] *L. Voßkämper and G. Pelz*, „Per Mausclick zum Sensor – Top-Down Design für Mikrosysteme“, Elektronik Praxis 1999.
- [37] *L.M. Voßkämper, R. Schmid, G. Pelz*, "Combining Models of Physical Effects for Describing Complex Electromechanical Devices", IEEE/ACM International Workshop on Behavioral Modeling and Simulation (BMAS), Orlando, Florida, USA, 2000.
- [38] *A. Lüdecke, G. Pelz*, "Top-Down Design of a Mechatronic System", 3rd Forum on Specification and Design Languages (FDL 2000), Tübingen, Germany.
- [39] *M. Leineweber, G. Pelz, M. Schmidt, G. Zimmer*, "New Tactile Sensorchip with Silicone Rubber Cover", Sensors and Actuators, A 84, 2000.
- [40] *P. Wiebe, G. Pelz*, "Biosignalverarbeitung des menschlichen Elektrokulogramms (EOG) zur Steuerung von Computer-Eingabemedien für gelähmte Menschen", Biomedizinische Technik / Biomedical Engineering, Band 45, Ergänzungsband 1, 2000.
- [41] *A. Lüdecke, G. Pelz*, "Simulation heterogener Mikrosysteme durch den Einsatz parametrisierbarer Basismodelle", Proceedings: 3. ITG/GI/GMM-Workshop Multi-Nature Systems, Hamburg, Germany, 22. Feb. 2001.
- [42] *D. Dammers, P. Binet, G. Pelz, L. Voßkämper*, "Motor Modeling based on physical Effect Models", IEEE International Workshop on Behavioral Modeling and Simulation (BMAS) 2001.
- [43] *G. Pelz*, "The Virtual Disk Drive - Mixed-domain Support for Disk Electronics over the complete Life-Cycle", IEEE International Workshop on Behavioral Modeling and Simulation (BMAS) 2001.
- [44] *G. Pelz*, "Designing Circuits for Disk Drives", IEEE Int. Conference on Computer Design (ICCD), 2001.
- [45] *L. Voßkämper, R. Schmid, G. Pelz*, „Modeling Micro-Mechanical Structures for System Simulations“, Forum on Specification and Design Languages (FDL 2001).
- [46] *L. Voßkämper, R. Schmid, G. Pelz*, „Universelle Modellierung mikromechanischer Strukturen für den Einsatz in Systemsimulationen“, ASIM Workshop Modellierung und Simulation technischer Systeme, 2001.
- [47] *D. Metzner, J. Schäfer, G. Pelz*, „HDL-Based System Engineering for Automotive Power Applications“, IEEE International Workshop on Behavioral Modeling and Simulation (BMAS) 2003.
- [48] *D. Dammers, G. Pelz, L.M. Voßkämper*, „Simulation mechatronischer Systeme im Schaltungssimulator – Demonstrator: Festplatte“, ASIM 2003.

- [49] *G. Pelz, J. Schäfer, D. Metzner, M. Hell, A. Opielka*, „In-Vehicle Network Verification from Application to Physical Layer“, SAE World Congress 2004, Detroit.
- [50] *M. Hell, D. Metzner, A. Opielka, G. Pelz*, „Verifikation eines LIN-Netzwerks mittels Simulation“, LIN-Sonderheft der "Elektronik", 2004.
- [51] *G. Pelz, C. Decker, D. Metzner, D. Dammers, L.M. Voßkämper*, „Simulating Microsystems in the Context of an Automotive Drive Application“, Advanced Microsystems for Automotive Applications, Berlin, 2004.
- [52] *G. Seibert, D. Metzner, F. Klotz, G. Pelz, R. Weigel*, „Behavioral Modeling of ICs for Investigations of conducted Emissions in automotive Systems“, 17. Int. Zurich Symposium on EMC, 2006.
- [53] *A. Pirker-Frühauf, C. Schönherr, A. Laroche, G. Pelz*, “Worst-Case Modeling and Simulation of an Automotive Throttle in VHDL-AMS“, IEEE International Workshop on Behavioral Modeling and Simulation (BMAS) 2007.
- [54] *M. Gürsoy, B. Deutschmann, F. Camarero, F. Klotz, G. Pelz*, „Behavioral Modeling of Analog/Mixed-Signal ICs for EMC Simulation“, 18. Int. Zurich Symposium on EMC, 2007.
- [55] *A. Pirker-Frühauf, W. Gallent, M. Kunze, G. Pelz*, „Acceleration of IC Verification Process using advanced flexible modular Measurement Systems and Software Architectures“, IEEE Int. Instrumentation and Measurement Technology Conference 2008.
- [56] *J. Kirscher, M. Lenz, D. Metzner, G. Pelz*, "Real-life Parameter Extraction for automotive electric Drive Applications", ASIM-Konferenz, Wismar, 2008.
- [57] *J. Kirscher, M. Lenz, D. Metzner, G. Pelz*, "Verification of an Automotive Headlight Leveling Circuit and Application Using Smart Component Property Extraction", IEEE International Workshop on Behavioral Modeling and Simulation (BMAS) 2008.
- [58] *T. Nguyen, J. Haase, G. Pelz*, "Sensitivity Analysis of passive CAN-bus Components to investigate Signal Integrity on CAN Network physical Layer", IEEE International Workshop on Behavioral Modeling and Simulation (BMAS) 2008.
- [59] *M. Rafaila, C. Decker, C. Grimm, G. Pelz*, "SystemC-AMS High-level Verification of Automotive Applications in the Presence of Uncertainties", Forum on Specification and Design Languages (FDL), industrial session, Stuttgart, 2008.
- [60] *M. Gürsoy, S. Jahn, B. Deutschmann, G. Pelz*, "Analysis of conducted Emissions in CAN Bus Systems with VHDL-AMS", EMC Europe, 2008.
- [61] *M. Gürsoy, S. Jahn, B. Deutschmann, G. Pelz*, "Methodology to predict EME Effects in CAN Bus Systems using VHDL-AMS", IEEE Transactions on EMC, 2008.
- [62] *G. Pelz, Z. Gergintschew, C. Zeller*, "Design Quality in the Development of Automotive Smart Power ICs 2. GMM/GI/ITG Fachtagung Zuverlässigkeit und Entwurf (ZuE), 2008.
- [63] *M. Rafaila, C. Decker, C. Grimm, K. Einwich, T. Markwirth, G. Pelz*, "New Methods for System-level Verification using SystemC-AMS Extensions: Application to an Automotive ECU", Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systeme, Berlin, 2009.
- [64] *M. Rafaila, C. Decker, C. Grimm, K. Einwich, T. Markwirth, G. Pelz*, "Case Study of High-level Verification of an Automotive Window Lifter ECU", Workshop on Multi Nature Systems 2009.
- [65] *M. Rafaila, C. Decker, C. Grimm, G. Pelz*, "Design of Experiments for Effective Pre-silicon Verification of Automotive Electronics", Forum on Specification and Design Languages (FDL) 2009.

- [66] *T. Nguyen, M. Duregger and G. Pelz*, „Full System Verification of CAN Network at high speed Transmission Rate using VHDL-AMS“, IEEE International Workshop on Behavioral Modeling and Simulation (BMAS), 2009.
- [67] *M. Rafaila, C. Decker, C. Grimm, G. Pelz*, „Simulation-Based Sensivity and Worst-Case Analyses of Automotive Electronics“, IEEE International Symposium on Design and Diagnostics of Electronic Circuits and Systems, 2010.
- [68] *M. Rafaila, C. Grimm, C. Decker, G. Pelz*, „Sequential Design of Experiments for Effective Model-Based Validation of Automotive Electronic Control Units“, Mikroelektronik 2010 (ME10), Wien.
- [69] *T. Nguyen, G. Pelz*, „Non-Standard CAN Network Topologies Verification at High Speed Transmission Rate Using VHDL-AMS“, Society of Automotive Engineers World Congress, Detroit, 2010.
- [70] *T. Nirmaier, M. Harrant, G. Pelz*, “Extending Constrained Random Verification to mixed-signal Automotive Power Devices using a non-stationary Markov process”, 7th IEEE International Workshop on Silicon Debug and Diagnosis (SDD at ITC) 2011
- [71] *P. Nury, J. Kirscher, G. Pelz, H. Zojer*, “A model-based Methodology for the Validation of an analogue mixed-signal integrated Airbag Squib Driver, 7th European Conference on Modeling Foundations and Applications (ECMFA) 2011
- [72] *T. Nirmaier, V. Meyer zu Bexten, M. Trisl, M. Harrant, M. Kunze, M. Rafaila, J. Lau, G. Pelz*, „Measuring and improving the Robustness of automotive smart power Microelectronics” Design, Automation and Test in Europe (DATE) 2012
- [73] *A. Oros, M. Topa, M. Neag, M. Rafaila, G. Pelz*, “Application-oriented Robustness Optimization based on Metamodels”, IEEE 18th International Symposium for Design and Technology in Electronic Packaging (SIITME) 2012
- [74] *T. Nirmaier, J. Kirscher, Z. Maksut, M. Harrant, M. Rafaila, G. Pelz*, “Robustness Metrics for Automotive Power Microelectronics. RIIF Workshop, Design, Automation and Test Conference in Europe (DATE) 2013
- [75] *M. Harrant, T. Nirmaier, J. Kirscher, C. Grimm, G. Pelz*, „Monte Carlo based post-silicon Verification considering automotive Application Variances”, PRIME 2013
- [76] *A. Oros, I. Kovacs, M. Topa, A. Buzo, M. Rafaila, M. Harrant, G. Pelz*, “Data Improvement in Lab Verification of smart power Products using DoE”, IEEE 19th International Symposium for Design and Technology in Electronic Packaging (SIITME) 2013
- [77] *M. Harrant, T. Nirmaier, C. Grimm, G. Pelz*, “Configurable Load Emulation Using FPGA and Power Amplifiers for Automotive Power ICs”, Chapter in “Models, Methods, and Tools for Complex Chip Design: Selected Contributions from FDL 2012”, Springer 2013
- [78] *T. Nirmaier, A. Burger, M. Harrant, A. Viehl, O. Bringmann, W. Rosenstiehl, G. Pelz*, “Mission Profile aware Robustness Assessment of automotive Power Devices”, Design, Automation & Test in Europe (DATE) 2014
- [79] *M. Harrant, T. Nirmaier, J. Kirscher, C. Grimm, G. Pelz*, “Emulation-Based Robustness Assessment for Automotive Smart-Power ICs”, Design, Automation and Test in Europe Conference & Exhibition (DATE) 2014.
- [80] *Ö. Karaca, J. Kirscher, L. Maurer, G. Pelz*, “Towards simulation based Evaluation of Safety Goal Violations in automotive Systems”, Forum on Specification and Design Languages (FDL) 2014

- [81] *A. Oros, R. Amariutei, A. Buzo, M. Rafaila, M. Țopa, G. Pelz*, “Robustness Optimization of heterogeneous Systems in multi-objective Scenarios”, Proceedings of the 16th International Conference on Mechatronics, Mechatronika 2014
- [82] *A. Oros, M. Țopa, R. Amariutei, A. Buzo, M. Rafaila, G. Pelz*, “Robust Response Design for heterogeneous Systems based on Metamodels”, 21st IEEE International Conference on Electronics, Circuits and Systems (ICECS) 2014
- [83] *L. Mușat, M. Hübl, A. Buzo, G. Pelz, S. Kandl, P. Puschner*, „Semi-formal Representation of Requirements for Automotive Solutions Using SysML”, Forum on Specification and Design Languages (FDL) 2014
- [84] *M. Soeken, N. Abdessaied, A. Allahyari-Abhari, A. Buzo, L. Mușat, G. Pelz, R. Drechsler*, “Quality Measures for Requirements based on Natural Language Processing”, “Natural Language Processing for Requirements Formalization” Special Session at Forum on Specification and Design Languages (FDL) 2014
- [85] *M. Dobler, M. Harrant, M. Rafaila, G. Pelz, W. Rosenstiehl, M. Bogdan*, “Bordersearch: An adaptive Identification of failure Regions”, Conference on Design, Automation & Test in Europe (DATE) 2015
- [86] *S. Simon, G. Pelz, L. Maurer*, “Accelerating Coverage Collection for Mixed-Signal Systems in a UVM Environment”, Forum on Specification and Design Languages (FDL) 2015
- [87] *R. Amariutei, L. Goraș, M. Rafaila, A. Buzo, G. Pelz*, “On Limit Cycles Suppression in DC-DC Buck Converters”, International Semiconductor Conference (CAS) 2015
- [88] *R. Amariutei, D. Andries, L. Goraș, M. Rafaila, A. Buzo, G. Pelz*, “On the transient Analysis of a DC-DC Buck Converter under Load Steps Scenarios”, International Symposium on Signals, Circuits and Systems (ISSCS) 2015
- [89] *R. Amariutei, L. Goraș, M. Dobler, M. Rafaila, A. Buzo, G. Pelz*, “On the Stability Domain of a DC-DC Buck Converter with Software Control Loop”, 19th International Conference on System Theory, Control and Computing (ICSTCC) 2015
- [90] *R. Amariutei, L. Goraș, M. Rafaila, A. Buzo, G. Pelz*, "On the Suppression of Output Oscillations in a Software Controlled DC-DC Buck Converter“, Romanian Journal of Information Science and Technology (ROMJIST) 2015
- [91] *T. Nirmaier, Ö. Karaca, J. Kirscher, T. Rickes, A. Menegolo, F. Sartor, B. Töscher, M. Pröll, G. Pelz*, „Test and Validation of Functional Safety Requirements by On-Board Fault Emulation“, International Test Conference (ITC) 2015
- [92] *Z. Zhang, R. Kokozinski, J. Kirscher, G. Pelz*, „Simulative Analysis Methods Deployed to Optimize Automotive Battery Management, IEEE Vehicle Power and Propulsion Conference, 2015
- [93] *L. Mușat, S. Kandl, P. Puschner, M. Hübl, A. Buzo, G. Pelz*, “Requirement Semi-Formalization Methodology for SoC Design”, International SoC Design Conference (ISOCC) 2015
- [94] *J. Stricker, B. Köppl, J. Kirscher, T. Nirmaier, L. Maurer, G. Pelz*, „Multi Objective Optimization based Development of Power Electronics for Automotive Applications“. In Forum on Specification and Design Languages (FDL) 2016
- [95] *A. Iosub, J. Kirscher, M. Rafaila, A. Buzo, G. Pelz, L. Goraș*, “Simulation-based Approach to Application Fitness for an E-Bike”, Proceedings IEEE Sensors Applications Symposium (SAS) 2016
- [96] *A. Iosub, I. Kovacs, A. Buzo, J. Kirscher, G. Pelz, L. Goraș*, “Distribution fitting Approach to Application Fitness Assessment”, 12th IEEE International Symposium on Electronics and Telecommunications (ISETC) 2016

- [97] *A. Iosub A., J. Kirscher, A. Buzo, M. Rafaila, G. Pelz, L. Goraş*, "On the Influence of Angle Sensor Nonidealities on the Torque Ripple in PMSM Systems – an analytical Approach", Proc. International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD) 2016
- [98] *A. Iosub, J. Kirscher, M. Rafaila, A. Buzo, G. Pelz, L. Goraş*, "Modeling and Simulation of an E-Bike Application with a PMSM Field-oriented Control by using SystemC-AMS Language", Scientific Bulletin of the Polytechnic Institute Iaşi, 2016
- [99] *A. Iosub, J. Kirscher, M. Rafaila, A. Buzo, G. Pelz, L. Goraş*, "Current Sampling based Saturation Limits Design of PI Regulators in Motor Control Applications", Scientific Bulletin of the Polytechnic Institute Iaşi, 2016
- [100] *I. Kovacs, A. Iosub, M. Ţopa, A. Buzo, and G. Pelz*, "A novel entropy-based Sensitivity Analysis Approach for complex Systems," IEEE Symposium Series on Computational Intelligence (SSCI) 2016
- [101] *Ö. Karaca, J. Kirscher, A. Laroche, A. Tributsch, L. Maurer, G. Pelz*, „Fault grouping for fault Injection based Simulation of AMS Circuits in the Context of functional Safety”, International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD) 2016
- [102] *C. Forster, S. Buschhorn, M. Rafaila, L. Maurer, and G. Pelz*, "Cascading Metamodels from Different Sources for Performance Analysis of a Power Module", Forum on Specification and Design Languages, Forum on Specification and Design Languages (FDL) 2016
- [103] *S. Simon, Ö. Karaca, J. Kirscher, A. Rath, G. Pelz, L. Maurer*, "Safety-oriented mixed-signal Verification of automotive Power Devices in a UVM Environment", International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD) 2016
- [104] *I. Kovacs, M. Ţopa, A. Buzo, G. Pelz*, "Integrated Circuits' Characterization for non-normal Data in Semiconductor Quality Analysis" IEEE European Test Symposium (ETS) 2017
- [105] *I. Kovacs, M. Ţopa, A. Buzo, G. Pelz*, "An accurate Yield Estimation Approach for multivariate non-normal Data in Semiconductor Quality Analysis", International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD) 2017
- [106] *I. Kovacs, M. Ţopa, A. Buzo, M. Rafaila, G. Pelz*, "Comparison of Sensitivity Analysis Methods in high-dimensional Verification Spaces", Acta Technica Napocensis Electronics and Telecommunications Journal, Technical University of Cluj-Napoca, 2016.
- [107] *C. Forster, M. Harrant, J. Kirscher, L. Maurer, G. Pelz*, "Error Propagation for Cascading Metamodels Applied on an Electric Drive Application", Forum on Specification and Design Languages (FDL) 2017
- [108] *C. Forster, J. Kirscher, R. Schaller, S. Simon, L. Maurer, G. Pelz*, "Lifetime Modeling for a Simulative Evaluation of Package Reliability in an Automotive Application", International Semiconductor Conference (CAS) 2017
- [109] *C. Pop, C. Burileanu, A. Buzo, G. Pelz*, "Application-aware Lifetime Estimation of Power Devices", 22nd IEEE European Test Symposium, 2017
- [110] *D. Andries, L. Goraş, A. Buzo, G. Pelz*, "Automatic tuning for a DC-DC Buck Converter with adaptive Controller", International Symposium on Signals, Circuits and Systems (ISSCS) 2017

- [111] *J. Stricker, B. Koepl, A. Buzo, J. Kirscher, L. Maurer and G. Pelz*, "Efficient simulative Pass/Fail Characterization applied to Automotive Power Steering", IEEE Artificial Intelligence for Industries (AI4I) 2018
- [112] *J. Stricker, C. Kain, A. Buzo, J. Kirscher, L. Maurer and Georg Pelz*, "Fault Impact Assessment for Automotive Smart Power Products in an Electric Power Steering Application", International Semiconductor Conference (CAS) 2018
- [113] *I. Kovacs, M. Topa, E. David, A. Buzo, G. Pelz*, "Improved Pareto Chart Analysis for Yield Detectors' Identification", International Symposium on Fundamentals of Electrical Engineering (ISFEE), 2018
- [114] *J. Stricker, C. Kain, A. Buzo, J. Kirscher, L. Maurer and Georg Pelz*, "Semiconductor Component Fault Assessment and Probability Impact Estimation on Application Level", IEEE Nordic Circuits and Systems Conference (NORCAS), 2018
- [115] *A. Iosub, I. Kovacs, A. Buzo, J. Kirscher, G. Pelz, L. Goras*, "Application Fitness Analysis based on Metamodeling Techniques - case study: E-Bike", Acta Technica Napocensis Electronics and Telecommunications Journal, Cluj-Napoca, 2018
- [116] *C. Forster, J. Kirscher, L. Maurer, and G. Pelz*, "Metamodel-Based Performance Evaluation for an Electromechanical Automotive System", International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD) 2018
- [117] *C. Pop, A. Buzo, G. Pelz, H. Cucu, C. Burileanu*, "Methodology for Determining the influencing Factors of Lifetime Variation for Power Devices", IEEE European Test Symposium (ETS) 2018
- [118] *M. Harrant, T. Nirmaier, G. Pelz, B. Eversmann*, "Automotive Supply Line Robustness incorporating Hardware-embedded Wavelet Filters", Workshop Testmethoden und Zuverlässigkeit von Schaltungen und Systemen (TUZ) 2018
- [119] *D. Sandru, E. David, G. Pelz*, "Pre-Silicon Yield Estimation Using Machine Learning Regression", IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2019
- [120] *I. Kovacs, M. Topa, A. Buzo, G. Pelz*, "A Gradient-based Sensitivity Analysis Method for Complex Systems", IEEE International Symposium for Design and Technology in Electronic Packaging (SIITME), 2019
- [121] *D. Andries, L. Goras, E. David, A. Buzo, G. Pelz*, "On the Accuracy of a Time-Domain Identification Method for a DC-DC Buck Converter", IEEE International Symposium on Signals, Circuits and Systems (ISSCS), 2019
- [122] *D. Sandru, C. Burileanu, E. David, A. Buzo, G. Pelz*, "Modeling the Dependencies between Circuit and Technology Parameters for Sensitivity Analysis using Machine Learning Techniques", IEEE International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD), 2019
- [123] *C. Pop, A. Buzo, G. Pelz, H. Cucu, C. Burileanu*, "The Estimation of the Lifetime Variation for Power Devices, IEEE Transactions on Device and Materials Reliability, 2019
- [124] *C. Pop, A. Buzo, C. Diaconu, G. Pelz, H. Cucu, C. Burileanu*, Application-Aware Lifetime Model for Power Devices based on Electro-Thermal Simulation, IEEE International Semiconductor Conference (CAS), 2019
- [125] *T. Nirmaier, M. Harrant, B. Grünwald, J. Zimmer, B. Eversmann, G. Pelz*, "Mixed-Signal Assertions versus Machine-Learning as Fault Detection Method in post-silicon Verification", Workshop Test und Zuverlässigkeit von Schaltungen und Systemen (TUZ), 2019

- [126] T. Nirmaier, M. Harrant, B. Eversmann and G. Pelz, Leveraging IEEE 1850 PSL and Mixed-Signal Assertions for Post-silicon Verification of Automotive Power Devices, IEEE International Test Conference India (ITC India), 2019
- [127] D. Andries, L. Goras, E. David, A. Buzo and G. Pelz, "On the Pole-Placement Technique for the Design of a DC-DC Buck Converter Discrete PID Control", IEEE International Symposium on Design and Diagnostics of Electronic Circuits & Systems (DDECS), 2020
- [128] I. Kovacs, M. Topa, M. Ene, A. Buzo and G. Pelz, "A Jackknife Variance-based Stopping Criterion for Adaptive Verification of Integrated Circuits", IEEE International Spring Seminar on Electronics Technology (ISSE), 2020
- [129] A. Gaita, G. Nicolae, E. David, A. Buzo, C. Burileanu and G. Pelz, "A SIFT-based Waveform Clustering Method for aiding analog/mixed-signal IC Verification", IEEE European Test Symposium (ETS), 2020
- [130] I. Kovacs, M. Topa, M. Ene, A. Buzo, G. Pelz, "A metamodel-based adaptive sampling approach for efficient failure region characterization of integrated circuits", IEEE Conference on Design of Circuits and Integrated Systems (DCIS), 2020
- [131] I. Kovacs, M. Topa, M. Ene, A. Buzo, G. Pelz, "A metamodel residual-based stopping criterion for adaptive verification of integrated circuits, IEEE International Symposium for Design and Technology in Electronic Packaging (SIITME), 2020
- [132] I. Kovacs, M. Topa, C. Pop; D. Şandru, A. Buzo, G. Pelz, "Correlating electrical and process parameters for yield detractors' detection", International Symposium on Electronics and Telecommunications (ISETC), 2020
- [133] D. Şandru, E. David, G. Pelz, "Machine learning-based local sensitivity analysis of integrated circuits to process variations", IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2020
- [134] A. Sandu, A. Buzo, G. Pelz, C. Burileanu, "Adaptive methodology for process-voltage-temperature verification", International Semiconductor Conference (CAS), 2020
- [135] G. Alia, A. Buzo, D. Ludwig, L. Maurer, G. Pelz, "A differential evolution based methodology for parameter extraction of behavioral models of electronic components, International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD), 2021
- [136] M. Huppmann, K.-W. Pieper, A. Buzo, L. Maurer, G. Pelz, "Utilizing differential evolution for an automated compact model parameter extraction", International Semiconductor Conference (CAS), 2021
- [137] M. Stănescu, C. Vişan, G. Sandu, H. Cucu, C. Diaconu, A. Buzo, G. Pelz, "Multi-objective optimization algorithms for automated circuit sizing of analog/mixed-signal circuits", International Semiconductor Conference (CAS), 2021

- [138] *D. Şandru, E. David, I. Kovacs, A. Buzo, C. Burileanu, G. Pelz*, “Modeling the dependency of analog circuit performance parameters on manufacturing process variations with applications in sensitivity analysis and yield prediction”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems* (Volume: 41, Issue: 1, Jan. 2022)
- [139] *T. Nirmaier, M. Harrant, M. Huppmann, W. You, G. Pelz*, “Virtual Prototyping: Closing the digital gap between product requirements and post-Si verification”, *IEEE International Test Conference*, 2022
- [140] *C. Manolache, A. Caranica, H. Cucu, A. Buzo, C. Diaconu, G. Pelz*, “Enhanced Candidate Selection Algorithm for Analog Circuit Verification”, *International Semiconductor Conference (CAS)*, 2022
- [141] *O. Pascu, C. Visan, M. Stănescu, H. Cucu, C. Diaconu, A. Buzo, G. Pelz*, “Efficient Modeling of PVT Variation for Mixed-Signal Circuit Sizing”, *International Semiconductor Conference (CAS)*, 2022
- [142] *G. Alia, A. Buzo, H. Maier-Flaig, K.-W. Pieper, L. Maurer, G. Pelz*, “Automatic Parameter Extraction of MOSFET Compact Models using Differential Evolution with Population Prediction (DEpred)”, *IEEE Electron Devices Technology & Manufacturing Conference (EDTM)*, 2022
- [143] *M. Huppmann, M. Harrant, T. Nirmaier, A. Buzo, L. Maurer, G. Pelz*, “Towards Complete State Machine Traversal via Pseudo Transitions in Automated Lab Verification”, *IEEE International Test Conference India (ITC India)*, 2022
- [144] *C. Manolache, A. Caranica, M. Stănescu, H. Cucu, A. Buzo, C. Diaconu, G. Pelz*, “Advanced Operating Conditions Search applied in Analog Circuit Verification”, *18th International Conference on Synthesis, Modeling, Analysis and Simulation Methods and Applications to Circuit Design (SMACD)*, 2022
- [145] *V. Grosu, L. Goras, E. David, G. Pelz*, “Using Neural Network Based Active Learning for Modelling Integrated Circuits Behavior”, *International Symposium on Signals, Circuits and Systems (ISSCS)*, 2023
- [146] *A. Rusu, E. David, M. Ţopa, V. Grosu, A. Buzo, G. Pelz*, “Improvement and Performance Evaluation of an Adaptive Method for Integrated Circuits Pre-silicon Verification”, *IEEE International Symposium on Signals, Circuits and Systems (ISSCS)*, 2023

Munich, July 30th, 2023

Prof. Dr. Georg Pelz