List of Talks

Invited Talks, Keynote Lectures and Courses

1. *Identifikation von Fuzzy-Modellen und ihre Anwendung zur Regelung nichtlinearer Prozesse.* Seminar Automatisierungstechnik, Universität Karlsruhe, Karlsruhe, Germany, January 27, 1998.

2. *Identifikation von Fuzzy-Modellen und ihre Anwendung zur Regelung nichtlinearer Prozesse.* Kolloquium Technische Kybernetik, Universität Stuttgart, Stuttgart, Germany, February 10, 1998.

3. *On using fuzzy arithmetic to solve problems with uncertain model parameters.* Katholieke Universiteit Leuven, Department of Mechanical Engineering, Division Product Engineering, Machine Design and Automation, Leuven, Belgium, June 1, 1999.

4. *Fuzzy arithmetic – a powerful tool to treat uncertainties in computational engineering.* Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, Brazil, October 27, 1999.

5. *Fuzzy arithmetic – a powerful tool to treat uncertainties in computational engineering.* Escola Politécnica da Universidade de São Paulo, São Paulo, Brazil, October 29, 1999.

6. *Fuzzy methodologies in the engineering sciences and their applications. Lecture I: Fundamentals, Lecture II: Applications.* Special lecture series at the Department of Civil Engineering and Applied Mechanics, McGill University, Montréal, QC, Canada, August 9, 2001.

7. *An Introduction to fuzzy arithmetic with applications to the engineering sciences.* Three-days course on fuzzy methods in computational mechanics to doctoral students from various Belgian universities, Department of Mechanical Engineering, Katholieke Universiteit Leuven, Leuven, Belgium, March 4-6, 2002.

8. *Fuzzy-arithmetische Modellierung und Simulation von Systemen mit unsicheren Parametern.* Robert Bosch GmbH, Abteilung FV/FLP, Stuttgart, Germany, December 12, 2003.

9. *Modeling and Simulation of Component Uncertainties in Automotive Virtual Prototyping.* Habilitationskolloquium, Stuttgart, Germany, October 11, 2004.

10. *Fuzzy-arithmetische FE-Modellierung für Strukturen mit unsicheren Parametern.* Südwestdeutsches Mechanik-Kolloquium, Stuttgart, Germany, November 20, 2004.

11. *Fuzzy-Methoden in der Systemdynamik.* Antrittsvorlesung, Stuttgart, Germany, February 14, 2005.

12. *Modeling and Simulation of Uncertain Systems Using Fuzzy Arithmetic – An Overview of Theory and Engineering Applications.* Universität der Bundeswehr München, Neubiberg, Germany, April 12, 2005.

13. *Fuzzy Uncertainty Modelling in Crash Analysis.* Workshop of the Advanced Passive Safety Network (APSN), Leuven, Belgium, April 5, 2006.

14. *"The Future Is Fuzzy": A New Approach to Comprehensive Modeling and Analysis in the Engineering Sciences.* McGill University University, Montréal, QC, Canada, October 10, 2007.

15. *A Fuzzy Arithmetical Approach to Uncertainty Analysis of Smart Structures.* Joint Workshop InMAR – MADUSE – Smart Structures, Turin, Italy, October 31, 2007.

16. *"The Future Is Fuzzy": An Approach to Comprehensive Modeling and Analysis of Systems with Uncertainties.*, Akademia Górniczo Hutnicza, Cracow, Poland, January 14, 2008.

17. *"The Future Is Fuzzy" – An Approach to Comprehensive Modeling and Analysis of Systems with Epistemic Uncertainties.*, Invited Lecture at the Leuven Symposium on Applied Mechanics in Engineering – LSAME.08, Leuven, Belgium, March 31, 2008.

18. *Fuzzy-arithmetische Finite-Element-Analyse von Systemen mit unsicheren Parametern.*, Robert Bosch GmbH, Abteilung CR/ARU1, Stuttgart, Germany, April 11, 2008.

19. *Modeling and Analysis of Uncertain Systems.* Three lectures in SICON course on Experimental Dynamics, Model Identification and Damage Detection, Università degli Studi 'La Sapienza', Roma, Italy, June 9-13, 2008.

20. *Fuzzy Comprehensive Modeling – An Approach to Computational Analysis of Structures with Uncertainties.* Università degli Studi 'Roma Tre', Roma, Italy, June 13, 2008.

21. *Fuzzy Comprehensive Modeling – An Approach to Computational Analysis of Structures with Uncertainties.* Daimler AG Stuttgart, Stuttgart, Germany, July 1, 2008.

22. *Modeling and Analysis of Uncertain Systems.* COMMAS Summer School 2008 on 'Computational Mechanics of Materials and Structures', Universität Stuttgart, Fakultät Bau- und Umweltingenieurwissenschaften, Universität Stuttgart, Germany, October 9-10, 2008.

23. *Umfassende Modellierung, Simulation und Analyse von Systemen mit unsicheren Parametern.* Workshop 'Grundlagen der Bremsgeräusche – Industrie trifft Universität', Verband der Automobilindustrie (VDA) Frankfurt am Main, Germany, May 18-19, 2009.

24. *Eine umfassende Modellierungsmethodik für Systeme mit unsicheren Parametern unter Einsatz von Fuzzy-Arithmetik.* Fakultätsseminar der Fakultät Maschinenwesen der Technischen Universität Dresden, Germany, June 30, 2009.

25. *Vibration Analysis of Fluid-Filled Piping Systems with Epistemic Uncertainties.* Keynote lecture at the IUTAM Symposium on The Vibration Analysis of Structures with Uncertainties, Sankt Petersburg, Russian Federation, July 6, 2009.

26. *Unscharf parametrisierte Modelle für Systeme mit (epistemischen) Unsicherheiten – Identifikation, Validierung, Bewertung.* 3. Sitzung der Modellrechnergruppe 'Bremssysteme', Hamburg, Germany, February 4, 2010.

27. *Comprehensive Vibration Analysis of Systems with Epistemic Uncertainties.* EMAUG/GESA Meeting, Siemens AG, Berlin, Germany, March 12, 2010.

28. *Eine Methodik zur Modellierung und Analyse von Systemen mit epistemischen Unsicherheiten.* Seminar am Institut für Mechanik der Technischen Universität Berlin, Berlin, Germany, July 7, 2010.

29. *Modellierung von Unsicherheiten bei der Dämpfungsbeschreibung.* Fachveranstaltung 'Passive und aktive Dämpfung', Haus der Technik, Essen, Germany, March 23, 2011.

30. *Comprehensive Modeling of Uncertain Systems Based on Fuzzy Set Theory.* A series of lectures given in the framework of the CISM course 'Nondeterministic Mechanics', Udine, Italy, May 9-13, 2011.

31. *Uncertainties in Modeling and Simulation – Limitations or Additional Benefit?* McGill University Montréal, QC, Canada, September 22, 2011.

32. *Uncertainties in Modeling and Simulation – Limitations or Additional Benefit?* SimTech-Ringvorlesung zum Thema 'Einsatz von Simulationen im Entwicklungsprozess einer Hochleistungsbremse' gemeinsam mit Sergio Carvajal Gonzalez von der Dr. Ing. h.c. F. Porsche AG, Universität Stuttgart, May 2, 2012.

33. *Research at the ITM – Dynamics in a Dynamic Environment*, Joint PhD Students' Workshop of University of Stuttgart, Tongji University and Shanghai Jiao Tong University, Shanghai, China, July 12, 2012.

34. *Advanced Modeling and Simulation of Systems with Uncertainties – A Fuzzy Arithmetical Approach*, Joint PhD Students' Workshop of University of Stuttgart, Tongji University and Shanghai Jiao Tong University, Shanghai, China, July 13, 2012.

35. *Unsicherheiten in Mehrkörpersystemen – Herausforderung und Chance*, Dynamiktag 2012 – 50 Jahre ITM, Universität Stuttgart, October 12, 2012.

36. *Modellierung von Unsicherheiten bei der Dämpfungsbeschreibung.* Fachveranstaltung 'Passive und aktive Dämpfung', Haus der Technik, Essen, Germany, March 20, 2013.

37. *Uncertainties in Modeling and Simulation – Chance and Challenge.* Imperial College, London, UK, April 30, 2013.

38. *System Identification Based on Inverse Fuzzy Arithmetic.* Workshop on Uncertainty Analysis in Nonlinear Dynamics, Swansea University, Swansea, UK, July 4, 2013.

39. *Unsicherheiten in dynamischen Systemen – Herausforderung und Chance.* GAMM-Fachausschuss 'Dynamik und Regelungstheorie', Max-Planck-Institut für Dynamik komplexer technischer Systeme, Magdeburg, September 26, 2013.

40. *Systemidentifikation auf der Basis inverser Fuzzy-Arithmetik.* Fakultät für Maschinenbau und Wirtschaftswissenschaften, Technische Universität Graz, September 29, 2014.

41. *Lehre und Forschung am Institut für Technische und Numerische Mechanik.* Universitatea Tehnică din Cluj-Napoca, Cluj-Napoca, Romania, March 17, 2016.

42. *Uncertainties in Modeling and Simulation – Chance and Challenge.* International Conference on Structural Nonlinear Dynamics and Diagnosis – CSNDD 2016, Marrakech, Morocco, May 23, 2016.

43. *Fuzzy Arithmetic and Probability Theory – Complementary or Conflictive?* Workshop – Complex D, Priority Programme 1886 – Polymorphic Uncertainty Modelling for the Numerical Design of Structures, Erlangen, March 14, 2017.

44. *"The Future is Fuzzy" – Chance and Challenge of Uncertainties in Modeling and Simulation.* Institut für Automatisierung, Technische Universität Chemnitz, Chemnitz, April 25, 2017.

45. *Fuzzy Arithmetic and Probability Theory in Uncertainty Analysis – Unity in Diversity.* Weierstrass Institute for Applied Analysis and Stochastics (WIAS), Berlin, June 26, 2017.

46. *Certainly Uncertain – The Charm of Fuzzy Predictions.* Semi Plenary Lecture at the X International Conference on Structural Dynamics – EURODYN 2017, Rome, September 12, 2017.

47. *Applied Fuzzy Arithmetic in Engineering.* Lecture in the framework of the Doctoral School in Industrial and Civil Engineering, Università degli Studi Niccolò Cusano, Rome, January 26, 2018.

48. *"Entdecke die Möglichkeiten!" – Eine Einführung in die Unsicherheitsanalyse auf Basis der Möglichkeitstheorie.* Workshop der GAMM-Nachwuchsgruppe Stuttgart: Einführung in Themen der Mechanik und angewandten Mathematik, February 19, 2020.

49. *Uncovering a World of Possibilities: Quantifying Uncertainty with Possibility Theory.* Center for Mechanics, Uncertainty and Simulation in Engineering – MUSEN, Technische Universität Braunschweig, February 8, 2024.

Talks on Conferences

50. *Ein Fuzzy-Prädiktor für Bioprozesse.* 4. Dortmunder Fuzzy-Tage, Dortmund, Germany, June 7, 1994.

51. *Fuzzy-model-based control of biotechnological processes.* Second European Congress on Intelligent Techniques and Soft Computing – EUFIT '94, Aachen, Germany, September 22, 1994.

52. *Design and optimization of a nonlinear fuzzy controller using fuzzy process models.* Fourth European Congress on Intelligent Techniques and Soft Computing – EUFIT '96, Aachen, Germany, September 4, 1996.

53. *Enhanced fuzzy modeling using special membership functions and fuzzy rule bases.* 3rd IFAC Symposium on Intelligent Components and Instruments for Control Applications – SICICA '97, Annecy, France, June 11, 1997.

54. *Fuzzy-logic-based system modeling and its application to nonlinear process control.* 15th IMACS World Congress on Scientific Computation, Modelling and Applied Mathematics, Berlin, Germany, August 25, 1997.

55. *On developing enhanced fuzzy models for nonlinear process control.* 16th International Conference of the North American Fuzzy Information Processing Society – NAFIPS '97, Syracuse, NY, USA, September 22, 1997.

56. *On applying fuzzy arithmetic to finite element problems.* 17th International Conference of the North American Fuzzy Information Processing Society – NAFIPS '98, Pensacola Beach, FL, USA, August 21, 1998.

57. *Finite element problems with uncertain parameters.* PACAM IV and 8th DINAME, Rio de Janeiro, Brazil, January 6, 1999.

58. *On the implementation of fuzzy arithmetical operations for engineering problems.* 18th International Conference of the North American Fuzzy Information Processing Society – NAFIPS '99, New York, NY, USA, June 11, 1999.

59. *On using fuzzy arithmetic to solve problems with uncertain model parameters.* Euromech 405 Colloquium – Numerical Modelling of Uncertainties, Valenciennes, France, November 17, 1999.

60. *A nearly strict fuzzy arithmetic for solving problems with uncertainties.* 19th International Conference of the North American Fuzzy Information Processing Society – NAFIPS 2000, Atlanta, GA, USA, July 14, 2000.

61. *Simulation of the human glucose metabolism using fuzzy arithmetic.* 19th International Conference of the North American Fuzzy Information Processing Society – NAFIPS 2000, Atlanta, GA, USA, July 15, 2000.

62. *Simulation and analysis of a friction model with uncertain parameters using fuzzy arithmetic.* 21st Iberian Latin American Congress on Computational Methods in Engineering – CILAMCE 2000, Rio de Janeiro, Brazil, December 8, 2000.

63. *A fuzzy arithmetical approach to robust control.* Joint 9th IFSA and 20th NAFIPS International Conference 2001, Vancouver, BC, Canada, July 26, 2001.

64. *Enhanced parameter identification for complex biomedical models on the basis of fuzzy arithmetic.* Joint 9th IFSA and 20th NAFIPS NAFIPS International Conference 2001, Vancouver, BC, Canada, July 27, 2001.

65. *Influence of fuzzy variability on the estimation of hydraulic conductivity of transversely isotropic geomaterials.* International Symposium on Numerical Models in Geomechanics, NUMOG VIII, Rome, Italy, April 12, 2002.

66. *Simulation and analysis of structural joint models with uncertainties.* International Conference on Structural Dynamics Modelling, Madeira, Portugal, June 3, 2002.

67. *FRF simulation of structural joints with uncertain parameters.* Jahrestagung der Gesellschaft für Angewandte Mathematik und Mechanik – GAMM, Abano Terme/Padua, Italy, March 28, 2003.

68. *Simulation and analysis of fuzzy-parameterized models with the extended transformation method.* 22nd International Conference of the North American Fuzzy Information Processing Society – NAFIPS 2003, Chicago, IL, USA, July 25, 2003.

69. *An approach to inverse fuzzy arithmetic.* 22nd International Conference of the North American Fuzzy Information Processing Society – NAFIPS 2003, Chicago, IL, USA, July 25, 2003.

70. *LQR design for systems with uncertain parameters.* 48. Internationales Wissenschaftliches Kolloquium, Ilmenau, Germany, September 24, 2003.

71. *Fuzzy arithmetical modeling and simulation of vibrating structures with uncertain parameters.* International Conference on Noise & Vibration Engineering, Leuven, Belgium, September 21, 2004.

72. *On the use of fuzzy arithmetic for automotive crash simulations in the presence of uncertainty.* 20th Canadian Congress of Applied Mechanics – CANCAM 2005, Montréal, QC, Canada, June 2, 2005.

73. *A hybrid fuzzy approach to optimal control of uncertain systems.* International Conference on Systems, Man and Cybernetics – IEEE SMC 2005, Waikoloa, Hawaii, USA, October 11, 2005.

74. *Fuzzy arithmetic – a new approach to modeling and simulation of uncertain systems.* 15th Workshop Computational Intelligence, Dortmund, Germany, November 17, 2005.

75. *Fuzzy analysis of actively damped piezoelectric structures with uncertainties.* 24th International Modal Analysis Conference – IMAC XXIV, Saint Louis, MO, USA, January 30, 2006.

76. *On the inclusion of uncertain parameters in brake squeal analysis.* 24th International Modal Analysis Conference – IMAC XXIV, Saint Louis, MO, USA, January 31, 2006.

77. *Fuzzy arithmetical robustness analysis of mechanical structures with uncertainties.* 8th International Conference on Computational Structures Technology – CST 2006, Las Palmas de Gran Canaria, Spain, September 15, 2006.

78. *Fuzzy arithmetical analysis of smart structures with uncertainties.* 1st International Conference on Uncertainty in Structural Dynamics – USD2007, Sheffield, UK, June 11, 2007.

79. *Fuzzy arithmetical robustness analysis of a structural control system against uncertainty-induced spillover.* International Conference on Systems, Man and Cybernetics – IEEE SMC 2007, Montréal, QC, Canada, October 9, 2007.

80. *A fuzzy-based approach to comprehensive modeling and analysis of systems with epistemic uncertainties.* 10th International Conference on Structural Safety and Reliability – ICOSSAR 2009, Osaka, Japan, September 15, 2009.

81. *An identification procedure for epistemic uncertainties using inverse fuzzy arithmetic.* International Conference on Uncertainty in Structural Dynamics – USD/ISMA 2010, Leuven, Belgium, September 21, 2010.

82. *Comprehensive modeling of brake system components in the presence of epistemic uncertainties.* SAE 2010 Brake Colloquium & Exhibition, Phoenix, AZ, USA, October 13, 2010.

83. *Eine Methode zur Fluid-Struktur-Simulation unter Einbeziehung von Unsicherheiten.* Kongress für Simulation im Produktentstehungsprozess – SIMPEP 2011, Veitshöchheim, Germany, September 30, 2011.

84. *A fuzzy arithmetical approach to the inclusion of uncertainties in multibody systems.* 2nd Joint International Conference on Multibody System Dynamics – IMSD 2012, Stuttgart, Germany, May 29, 2012.

85. *Uncertainty analysis for damaged multi-wire cables.* 11th International Conference on Structural Safety and Reliability – ICOSSAR 2013, New York, NY, USA, June 19, 2013.

86. *Coping with Uncertainties Using the Program Package FAMOUS.* GAMM Annual Meeting, Friedrich-Alexander-Universität Erlangen-Nürnberg, March 14, 2014.

87. *A Reproducible Excitation Mechanism for Analyzing Electric Guitars.* GAMM Annual Meeting, Lecce, Italy, March 27, 2015.

88. *A Fuzzy Model Updating Technique Motivated by Bayesian Inference.* 1st International Conference on Uncertainty Quantification in Computational Sciences and Engineering, Crete Island, Greece, May 25, 2015.

89. *An Approach to Feed-Forward Controller Design for Underactuated Multibody Systems in the Presence of Uncertainty.* Joint Annual Meeting of GAMM and DMV, Technische Universität Braunschweig, Germany, March 10, 2016.

90. *Fuzzy Bayesian Estimation for the Identification of Fuzzy-Parameterized Models in the Framework of Model Updating.* International Conference on Uncertainty in Structural Dynamics – USD/ISMA 2016, Leuven, Belgium, September 20, 2016.

91. *On Using Fuzzy Arithmetic in Optimization Problems with Uncertain Constraints.* 88th GAMM Annual Meeting, Weimar, March 9, 2017.

92. *A Data-Driven Possibilistic Approach to the Identification of Uncertain Stability Lobe Diagrams.* 89th GAMM Annual Meeting, Munich, March 21, 2018.

93. *A Possibilistic Approach to the Optimization of Uncertain Systems.* ICVRAM ISUMA UNCERTAINTIES Conference 2018, Florianópolis, SC, Brazil, April 10, 2018.

94. *On Probability-Possibility Consistency in High-Dimensional Propagation Problems.* 3rd International Conference on Uncertainty Quantification in Computational Sciences and Engineering – UNCECOMP 2019, Crete Island, Greece, June 24, 2019.

95. *Unlocking Possibilities: Quantifying Imprecise Probabilities with Possibility Theory.* 94th Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Magdeburg, Germany, March 20, 2024.

96. *Beyond Precision: The Power of Possibility Theory for Quantifying Imprecise Probabilities.* International Conference on Uncertainty in Structural Dynamics – USD/ISMA 2024, Leuven, Belgium, September 10, 2024.