Organization Commitee

- András Benczúr head of Inf. Lab., INFO SZTAKI
- Noémi Friedman post-doc, WIRE TUBS, GRK 2075
- Adnan Ibrahimbegović chair in Mechanics Picardie, LMR UTC, CEACM
- Rita M. Kiss prof. MOGI BME
- László Kollár head of Vasarhelyi Pal doctoral school of civil eng., HSZ BME
- Anna Kučerová, asisstant prof,, MEC CTU
- Hermann G. Matthies head of WIRE TUBS
- L. Gergely Vigh associate prof., HSZ BME
- Mihály Weiner associate prof., AT BME
- Elmar Zander, post-doc, WIRE TUBS

Institutes/Organizations:

Central European Association for Computational Mechanics (CEACM)
Technische Universität Braunschweig (TUBS), Germany
▪Institute of Scientific Computing (WIRE TUBS)
▪Graduiertenkolleg 2075 (GRK 2075)
Inst. for Comp. Science and Control (SZTAKI), Hungary
•Informatics Lab. (INFO SZTAKI)
UTC-Sorbonne Universités (UTC), France
▪Lab. de Mécanique Roberval, Centre de Recherche Royallieu (LMR UTC)
Budapest Univ. of Techn. and Ec. (BME), Hungary
▪Dpt. of Mechatronics, Optics and Mech. Eng. Informatics, Fac. of Mech. Eng. (MOGI BME)
▪Dpt. of Analysis, Fac. of Natural Sciences (AT BME)
▪Dpt. of Structural Analysis, Fac. of Civil Eng. (HSZ BME)
Czech Techn. University in Prague (CTU), Czech Rep.
▪Dpt. of Mechanics, Fac. of Civil Eng. (MEC CTU

For further information:

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Budapest Univ. Of Techn. and Economics (BME)


Budapest

PARAMUNC

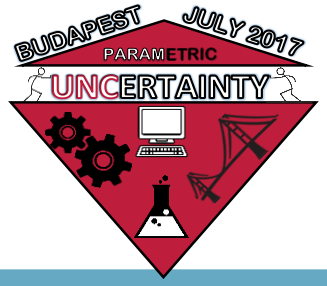
PARAMetric UNCertainty

Summer School and Workshop
Budapest, 3-7 July 2017

Bridging the Gap Between Engineering, Mathematics and Computational Science

Uncertainty Quantification, Parameter Identification and Challenges in Engineering Computations

PARAMetric UNCertainty



Summer School

3-5 July 2017

Addressed topics:

General theoretical background of uncertainty quantification and parameter identification

•Basics of probability theory
•Advanced methods for uncertainty quantification and the analysis of the propagation of uncertainties
•Global sensitivity analysis
•Parameter identification via probabilistic approaches

Practical implementation using SGLIB, an open source MATLAB library package

Specialized topics:

•Fragility assessment of structures
•Parametric uncertainty in multiscale analysis
•Optional topics from different fields selectable from the plenary lectures of the workshop

Lecturers

- Noémi Friedman, WIRE TUBS
- Adnan Ibrahimbegović, LMR UTC
- Hermann G. Matthies, WIRE TUBS
- Habib N. Najm, Sandia National Laboratory Livermore, USA
- Elmar Zander, WIRE TUBS
- L. Gergely Vigh, EO BME
- Mihály Weiner, TT BME

Workshop

6-7 July 2017

Topics of interest

●Parametric problems in engineering ● Uncertainty quantification ● Sensitivity analysis ● Inverse methods, optimization ● Reliability analysis ● Machine learning and data mining in engineering ● High dimensional problems: model reduction, low-rank representation ● Robust control

Plenary lectures

- Adnan Ibrahimbegović: **Probability-Based Explanation to Size Effect in Localized Failure of Massive Structures**
- Hermann G. Matthies: **Bayesian Identification and Calibration**
- András Benczúr: **Predictive Analytics in Manufacturing IoT Data**
- Habib N. Najm: **Parameter Estimation in Chemical Systems**
- Bálint Daróczy: **Tutorial on Deep Learning**
- Elmar Zander: **Nonlinear update methods based on the conditional expectation — the Minimum Mean Square Estimator (MMSE) and its application**
- Anna Kučerová: **Robust and Optimal Experiment Design for Identification of Thermophysical Parameters based on Global Sensitivites**
- Richard Semaan: **Optimal sensor placement using machine learning**
- Manuel Chiachío-Ruano: **Bayesian learning and uncertainty quantification at a system level: Introductory concepts and engineering applications by Petri Nets**
- Juan Chiachío-Ruano: **A hierarchical Bayesian approach to multi-scale inverse problems**

Target Audience

•PhD students, advanced master's students, researchers, practicing engineers
•Mechanical/civil/chemical/environmental engineers interested in advanced computational methods
•Application oriented computer scientists/ mathematicians/ physicists

(Basic knowledge of MATLAB is recommended for the small tutorials of the summer school)

Location

Summer school: BME, Budapest University of Technology and Economics
Workshop: SZTAKI Hungarian Doctoral Academy, Institute for Computer Science and Control

Registration

See more information and register under
www.wire.tu-bs.de/paramunc

Early registration untill 28 April, 2017 (extended deadline)