

Fourth International Workshop on

# VALIDATION OF COMPUTATIONAL MECHANICS MODELS

5<sup>TH</sup> NOVEMBER 2019

GROSSER ZUNFTSAAL, ZUNFTHAUS ZUR ZIMMERLEUTEN, ZURICH

(GREAT HALL in the GUILD HOUSE OF CARPENTERS, ZURICH)

This event follows the successful international workshops on validation of computational mechanics models held in **Shanghai** (2011), **London** (2013) and **Munich** (2014). The workshop includes significant discussion periods on issues associated with establishing confidence and credibility in simulation results generated using computational models. The use of data – historical, experimental and simulated – in both design and decision-making will be addressed. Sessions and keynote speakers are:

**CREDIBLE MODELS FOR ENGINEERING DECISION-MAKING**

Keynote: Linden Harris, Airbus Operations

The assessment of smarter testing for credibility and maturity

**VALIDATION OF MULTI-PHYSICS MODELS OF ENGINEERING SYSTEMS**

Keynote: Anna Pandolfi, Politecnico di Milano

Validation of multi-physics models: from the material scale to the boundary value problem

**THE FUTURE OF EXPERIMENTAL DATA FOR MODEL TRUSTWORTHINESS**

Keynote: Yakov Ben-Haim, Technion

As our island of knowledge grows, so does the shore of our ignorance

**Registration is free and a drink reception is included!**

Please register by **Sep 30<sup>th</sup> 2019** by email to [erwin.hack@empa.ch](mailto:erwin.hack@empa.ch)

For further information visit the project website at [www.engineeringvalidation.org](http://www.engineeringvalidation.org)

The workshop is funded by the EU H2020 project MOTIVATE.



**MOTIVATE** – Matrix Optimization for Testing by Interaction of Virtual And Test Environments

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## 4<sup>th</sup> INTERNATIONAL WORKSHOP ON VALIDATION OF COMPUTATIONAL MECHANICS MODELS

Tuesday 5<sup>th</sup> November 2019 at the “Zunftthaus zur Zimmerleuten” (Guildhall of Carpenters), Zürich

### PROGRAMME

- 09.30 Registration and Coffee
- 10.00 Introductory Remarks: Erwin Hack, Workshop Chair

#### SESSION ONE: Credible Models for Engineering Decision-Making

Chair: Eleni Chatzi, ETH Zurich, CH

- 10.10 **Keynote:** *The assessment of smarter testing for credibility and maturity*  
Linden Harris, Airbus Operations SAS, FR
- 10.50 *Validation and credibility challenges in applied biology and toxicology*  
Maurice Whelan, JRC Ispra, IT
- 11.10 *Experimental detection and quantification of crack networks for numerical simulation in heterogeneous materials using techniques based on 3D digital images*  
Yang Chen & James Marrow, University of Oxford, UK
- 11.30 Plenary Discussion. Panel: Linden Harris, Eann Patterson and Yang Chen
- 12.00 **LUNCH**

#### SESSION TWO: Validation of multi-physics models of engineering systems

Chair: Eann Patterson, University of Liverpool, UK

- 13.20 **Keynote:** *Validation of multiphysics models: from the material scale to the boundary value problem*  
Anna Pandolfi, Politecnico di Milano, IT
- 14.00 *Validation of fluid-structure interaction simulations*  
George Lampeas, University of Patras, HE
- 14.20 *Model Validation in the UK Nuclear Industry: A Proposed Probabilistic Metric*  
Steve Graham, National Nuclear Laboratory, UK
- 14.40 Plenary Discussion. Panel: Anna Pandolfi, George Lampeas and Steve Graham
- 15.00 **TEA BREAK**

#### SESSION THREE: *The Future of Experimental Data for Model Trustworthiness*

Chair: George Lampeas, University of Patras and Athena Research and Innovation Center, HE

- 15.20 **Keynote:** *As our Island of Knowledge Grows, so Does the Shore of our Ignorance*  
Yakov Ben-Haim, Technion, IL
- 16.00 *Using Historical Measurement Data for Validation of Engineering Simulations*  
Erwin Hack, Empa, CH
- 16.20 *Middle-ear mechanics and sound localization in the lizard: a finite-element approach*  
Pieter Livens, University of Antwerp, BE
- 16.40 Plenary Discussion. Panel: Yakov Ben-Haim, Erwin Hack and Peter Livens
- 17.00 End of Sessions
- 17.15 **DRINK RECEPTION**