

COST Action BM1309: European network for innovative uses of EMFs in biomedical applications (EMF-MED)

CALL FOR ABSTRACTS

Computational modeling and simulation is becoming a transformative tool for innovation in healthcare to improve patient safety and health outcomes. As the reliability and accuracy of these models and simulations profoundly affect the user or decision-maker's choices and directly impact the patient, scientifically sound procedures to verify and validate their integrity and predictive capability are required. In the context of this COST action, verification is the process of determining if a human anatomical model, PDE solver, tissue model, and specific analysis features are implemented correctly. Validation is the process of determining if a model accurately represents the physical reality for a specific medical application. Computational or experimental models help to predict system behavior and output quickly and efficiently. Simulation models are verified by comparing their output with robust analytical solutions; however, the validation of both simulation and experimental models is more complex, as it is application specific. For example, a model may be valid for one set of experimental conditions and invalid for another, thus limiting its validity across its applicability domain. An uncertainty assessment can provide additional assurance for integrating the model verification and validation into the quality assurance process, as it defines the confidence interval for the validity of the model and supports decisions for selecting the appropriate model based on its conditional applicability and reliability margin. The objective of this workshop is to bring together engineers and scientists from various disciplines and sectors to discuss and exchange best practices in verification, validation, and uncertainty assessment and to define the minimal requirements for implementing these procedures in the field of EMF-MED.

WORKSHOP TOPICS

- Verification of Computational Anatomical Models
- Verification of PDE solvers (e.g., temperature, EM)
- Verification of physiological tissue models (e.g., excitable tissue, property changes)
- Uncertainty analysis assessments (e.g., additive/multiplicative models, Monte Carlo)
- Validation of specific medical applications (e.g., MR Safe Implants)

INVITED TALKS

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| Niels Kuster | <i>"Setting the Stage for In Silico to Bedside: Basic V&V&QA Requirements"</i> |
| Wolfgang Kainz | <i>"V&V Requirements in the Regulatory Context: FDA View"</i> |
| Earl Zastrow | <i>"V&V Applied for Evaluation of MRI Safe Implants"</i> |
| Joe Wiart | <i>"Uncertainty Assessment with Polynomial Chaos Decomposition"</i> |
| Vikass Monebhurrn | <i>"Interlaboratory Comparisons: Experiments and Simulations"</i> |

This workshop is a part of COST EMF-MED (Action BM1309) event: www.COST-EMF-MED.eu

Venue:

Czech Technical University in Prague, Faculty of Electrical Engineering, Technicka 1902/2, 166 27 Prague 6, Czech Republic

Abstract Submission:

The abstracts (max. 2 pages) must be submitted to COST-EMF-MED@fesb.hr by **October 30th, 2015**.

The [abstract template](#) can be downloaded from the Action web site.

The authors will be informed about the abstract acceptance by November 5th, 2015.

Registration:

Please register by contacting COST-EMF-MED@fesb.hr.

Attendance to the workshop is free of charge.

