

**BEST ESTIMATE PLUS UNCERTAINTY INTERNATIONAL CONFERENCE**

Multi-Physics Multi-Scale Simulations with Accuracy and Uncertainty

Towards a broader and consistent application in safety assessment and licensingwww.nineeng.com/bepu2020**CALL FOR PAPERS 2021 (postponed due to Covid-19)****ABOUT THE CONFERENCE**

Foreword and Objective: In May 2018 the Conference Best Estimate Modelling Plus Uncertainties in Safety Analyses (BEPU 2018) was held in Lucca Italy. More than 200 papers were presented addressing newest achievements in development and application of BEPU methods. The conference demonstrated that since the last similar conference held in 2004, significant development occurred in BEPU area; however, the work was mainly concentrated on uncertainty evaluation methodologies rather than on the whole BEPU process. The BEPU2018 conference demonstrated that:

- BEPU applications in licensing are limited and their increase is foreseen to be slow;
- there is a need for comprehensive guidelines for use of BEPU technologies, and the availability of mature tools was questioned;
- consistency in all steps of BEPU needs to be ensured, however it was identified that there is a need to reduce shortcuts in

BEPU applications and to focus on exploitation of the full BEPU process;

- experimental data is central to the BEPU processes and methodologies; thus the use of the available of experimental data in an efficient and consistent way is required; and
- BEPU is at first a methodology that increases the knowledge and understanding of uncertainties and biases embedded in any deterministic safety analysis.

Expected Outcome: Considering these outcomes of the BEPU 2018 conference, there is a need to revisit the identified problems in relatively short time frame. Therefore, planning of the follow-up conference was initiated.

Structure of the conference: The Conference will be organized in Plenary Sessions, Regular Sessions, and Panel Discussions Sessions to promote intensive interactions among all conference participants. Poster and student sessions are also envisioned.

TOPICS AND SESSIONS**CONFERENCE SESSIONS (Including Student and Poster Sessions)****A. BEPU METHODOLOGY: TECHNICAL AND REGULATORY REQUIREMENTS**

- A1. Licensing and Regulatory Requirements for BEPU
- A2. V&V and BEPU
- A3. Scaling Issue and BEPU
- A4. Experimental Measurement Uncertainties and BEPU

B. BEPU METHODOLOGY DEVELOPMENTS

- B1. Statistical Methods for Uncertainty Analysis
- B2. Bayesian Methods for Uncertainty Analysis
- B3. Hybrid Methods for Uncertainty Analysis
- B4. Sensitivity Methods as supporting tools for Uncertainty Analysis

C. BEPU FOR MULTIPHYSICS (MP) & MULTISCALE (MS) APPLICATIONS

- C1. Thermal-Hydraulics (including I&C simulators) and Reactor Physics
- C2. Reactor Physics and Fuel Performance
- C3. Thermal-Hydraulics, Reactor Physics and Fuel Performance
- C4. Role of CFD and of Structural Mechanics for MP&MS BEPU
- C5. BEPU Challenges for MP&MS Applications including Numerical Issues
- C6. Best-Estimate and Uncertainty Evaluation for Design Extension Condition (DEC) including Severe Accidents

D. BEPU APPLICATIONS IN SAFETY ANALYSIS AND LICENSING FRAMEWORK

- D1. Light Water Reactor (PWR, WWER and BWR)
- D2. Heavy Water Reactors (CANDU, PHWR)
- D3. Small Modular Reactors
- D4. Priorities for BEPU Deployment for Current Plant Operation and Licensing Applications

E. OTHER BEPU APPLICATION RESULTS

- E1. BEPU Applications for Single Physics - Thermal-hydraulics
- E2. BEPU Applications for Single Physics - Reactor Physics
- E3. BEPU Applications for Single Physics - Fuel Performance
- E4. BEPU Methods and Results for Passive System Applications
- E5. BEPU Methods and Results for GEN-IV & Other New Designs
- E6. BEPU Methods and Results for Design Extension Conditions
- E7. BEPU Methods and Results for Research Reactor
- E8. BEPU Methods and Results for Simulator Applications

F. RECOMMENDATIONS AND FINDINGS FOR DEVELOPING FUTURE BEPU METHODOLOGIES

- F1. International Program Findings and Recommendations
- F2. BEPU Requirements from MP&MS Simulations
- F3. Demonstration of Practical Elimination of Accident Consequences
- F4. Reactor Safety Margins Assessment for External Hazards
- F5. Methods for Uncertainty Quantification in Non-Nuclear Disciplines



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IMPORTANT DATES

PAPERS ALREADY SUBMITTED AND APPROVED

- o Updates to Previously Accepted Papers:
December 31, 2020
- o REVIEW NOTIFICATION:
January 31, 2021
- o FINAL PAPER:
March 15, 2021

NEW ADDITIONAL PAPERS

- o ADDITIONAL DRAFT PAPERS:
December 31, 2020
- o REVIEW NOTIFICATION:
January 31, 2021
- o FINAL PAPER:
March 15, 2021

Materials from the proceedings will be distributed in a flash drive. The limit for BEPU-2020 paper submissions is 14 pages and should be submitted in a file size no larger than 10MB. Selected papers will be published in the Special issues of NSE (Nuclear Science Engineering), NED (Nuclear Engineering and Design) and NT (Nuclear Technology).

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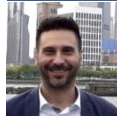


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