CALL FOR PAPERS

**Uncertainty Quantification in Engineering**


Thanks to advances in computing capabilities over recent decades, results of computational simulations are nowadays heavily used in the design of complex engineering systems from consumer electronics to spacecraft and nuclear power plants. Reliable predictions of such complex systems require sophisticated mathematical models and a systematic approach to building confidence in their predictive capability in the presence of numerous uncertainties. The errors and uncertainties inherent in any simulation are the result of many factors, including model structure inadequacies, uncertainties in model parameters, uncertain initial and boundary conditions, experimental measurement errors, as well as errors due to numerical discretization and sampling. One must develop stochastic models not only to identify and capture all the sources of error and uncertainty in a simulation, but to understand their interactions and to evaluate their impact on predictions. Uncertainty quantification thus encompasses methods for the forward propagation of uncertainty to key quantities of interest. Uncertainty quantification also encompasses the conditioning of models on observational data, e.g., model calibration and identification. Overall, we seek a broad range of uncertainty quantification approaches and algorithms for inclusion in this special issue. Examples include forward uncertainty propagation, statistical inference and inverse problems, sensitivity analysis, optimal experimental design, model selection, and model validation.

Papers should present innovative methodologies, based on stochastic modeling and addressing real problems, and will go through the standard, selective review process of ASMBI. Submissions are possible until **October, 31st, 2012** through the website [http://mc.manuscriptcentral.com/asmb](http://mc.manuscriptcentral.com/asmb), following the ASMBI author submission guidelines given on the ASMBI website and clicking on the box about submissions for special issues, mentioning "UQ" when requested.

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