**Probabilistic Methods for Model Inadequacy**

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**Teresa Portone\*, Kathryn Maupin\*
and Rebecca Morrison†**

\* Optimization and Uncertainty Quantification, Sandia National Laboratories

P.O. Box 5800, Albuquerque, NM, USA 87185-1327

tporton@sandia.gov, kmaupin@sandia.gov

† Department of Computer Science, CU Boulder

1111 Engineering Drive, ECOT 717, Boulder, CO, USA 80309

rebeccam@colorado.edu

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**ABSTRACT**

Computational models are commonly used to make predictions affecting high-consequence engineering design and policy decisions. However, incomplete information about modeled phenomena and limitations in experimental and/or computational resources necessitate approximations and simplifications that can lead to model inadequacy. Physics-based and data-driven improvements to inadequate models can improve their predictive power, but often available data is insufficient to fully determine the form of improved model forms—that is, multiple (possibly infinite) model forms could plausibly reproduce the data. This is model-form uncertainty. How best to address model-form uncertainty is an open question whose answer depends on the goals of an analysis, the application problem of interest, and available resources. This minisymposium invites speakers to present on probabilistic methods to address model inadequacy and model-form uncertainty, such as inference methods accounting for model inadequacy and explicit probabilistic representations of model uncertainty/discrepancy. *Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy’s National Nuclear Security Administration under contract DE-NA0003525.*

**REFERENCES**