Quantification of Uncertainty in Extreme Scale Computations (QUEST)

SAND2012-3082C

Lead: Habib N. Najm, Sandia National Laboratories
hnnajm@sandia.gov

PIs:

H. Najm, Sandia
R. Ghanem, USC
D. Higdon, LANL
O. Ghattas, UT
O. Knio, Duke
Y. Marzouk, MIT

- What is it: The SciDAC Uncertainty Quantification (UQ) institute **www.quest-scidac.org**
- Goals:
  - Advance UQ theory, algorithms, and software tools
  - Support SciDAC science application projects in UQ activities
    - BES, HEP, NP, Fusion, BER
- Scope:
  - Model calibration and parameter estimation
  - Forward & inverse uncertainty propagation in computational models
  - Model selection and validation

Poster Overview

- QUEST overview: Motivation, Goals, Vision, Scope, Impact
- UQ software: DAKOTA, QUESO, GPMSA, UQTk
- Recent progress:
  - UQ software functionality, and interoperability
  - UQ Algorithms
- Illustrations:
  - Modeling --- Random fields
  - Forward UQ --- Chemistry
  - Statistical Inversion --- Geophysics