Paul W. Talbot

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EDUCATION

Doctor of Philosophy, Nuclear Engineering
University of New Mexico, Albuquerque, New Mexico, GPA 4.08 — December 2016

Master of Science, Nuclear Engineering
Oregon State University, Corvallis, Oregon, GPA 3.75 — March 2013

Bachelor of Science, Physics
BYU-Idaho, Rexburg, Idaho, GPA 3.84 — April 2010

PROFESSIONAL EXPERIENCE

Idaho National Laboratory, Idaho Falls, ID

RAVEN project — Fall 2014 - Present

- High-dimension model reduction method implementation
- Sparse grid collocation method implementation
- BISON uncertainty quantification
  - Short PWR rods, failure probabilities
  - Full PWR rods, sensitivity analysis
  - Coupling with neutronics (MAMMOTH)
- Python, C++

MOOSE projects — Summers 2010, 2012

- Worked within multiphysics object-oriented software environment (MOOSE)
- Used method of manufactured solutions to test functionality
- Optimized polynomial fits for interstitials and voids in MARMOT
- C++, Python

Los Alamos National Laboratory, Los Alamos, NM — Summer 2011
CCS-2

- Extrapolated existing pseudo-analytic single-dimensional discrete maximum principle for the implicit Monte Carlo equations governing radiative heat transfer to include multiple dimensions, non-equilibrium conditions, and mutligroup energies.
- Implemented predictive capacity into use codes at LANL to predict boundedness in choices of spatial and time discretization.

AREVA, NP

BWR Neutronics — Summers 2008, 2009

- Assisted in benchmarking software version update
- Used simulation codes CASMO4 and MICROBURN-B2
- Researched effect of BLEU fuel in Browns Ferry Unit 2 rector

COMPUTING SKILLS

Experienced with Python, C++, Git, Bash, MatLab, Visual Basic
Some experience in Java, Javascript, Fortran, C

PUBLICATIONS

- P. W. Talbot, "Advanced Stochastic Collocation Methods for Polynomial Chaos in RAVEN,", Ph. D. Dissertation, Department of Nuclear Engineering, University of New Mexico, December 2016
- P. W. Talbot, C. Wang, et al, "Multistep Input Reduction for High Dimensional Uncertainty Quantification in RAVEN Code," ANS PHYSOR 2016
- P. W. Talbot, K. Gamble, et al, "Time-Dependent Sensitivity Analysis of OECD Benchmark using BISON and RAVEN," 2016 ANS winter conference transactions
- P. W. Talbot, A. K. Prinja, C. Rabiti, "Adaptive Sparse-Grid Stochastic Collocation Uncertainty Quantification Convergence for Multigroup Diffusion," 2016 ANS annual conference transactions
- C. Wang, P. W. Talbot, et al, "An efficient Sampling-Based Method for Sensitivity and Uncertainty Analysis through RAVEN," 2016 ANS annual conference transactions
- P. W. Talbot, A. K. Prinja, C. Rabiti, "High Density Model Reduction Uncertainty Quantification for Multigroup Diffusion Neutronics," 2015 ANS M&C topical conference transactions
- P. W. Talbot, A. K. Prinja, "Sparse-Grid Stochastic Collocation Uncertainty Quantification Convergence for Multigroup Diffusion," 2014 ANS winter conference transactions
- P. W. Talbot, "Extending the Discrete Maximum Principle for the IMC equations," Oregon State University masters thesis, September 2012
- P. W. Talbot, A. B. Wollaber, T. Palmer, "Implementing a Discrete Maximum Principle for the IMC Equations," 2012 ANS general conference transactions, M & C division
- M. R. Tonks, D. Gaston, P. C. Millett, D. Andrs, P. W. Talbot, "An object-oriented finite element framework for multiphysics phase field simulations," J. Computational Materials Science, Vol. 50 issue 3, January 2011

MEMBERSHIPS

American Nuclear Society - Alpha Nu Sigma
Society of Physics Students