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
- Nuclear-Renewable hybrid system economics analysis, modeling
- Stochastic gradient descent optimization methods
- High-dimension model reduction and sparse grid collocation
- Sparse grid collocation method implementation
- Framework improvement, maintenance, refactoring, development
- Uncertainty quantification for BISON, MAMMOTH, RATTLESNAKE
- RAVEN, Python, Bash, 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

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
National Postdoctoral Association