Paul W. Talbot

3201 Florian Ave.
Idaho Falls, ID 83401
(509) 713-2842

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

Integrated Energy Systems (IES) — 2017 - Present

- PI and lead developer, HERON (github.com/idaholab/HERON)
- Point of contact for awarded NEUP collaborations
- 2021 LDRD awarded: Signal processing for cybersecurity
- Industry, university, multilab collaborations
- Stochastic technoeconomic analysis of IES
- Stochastic gradient descent optimization R&D
- Software framework architecture design
- Continuous integration, nuclear software quality assurance

Uncertainty Quantification — 2014 - 2017

- High-dimension model reduction
- Sparse grid collocation for generalized polynomial chaos
- Agile development, maintenance, refactoring, quality assurance
- Continuous integration implementation
- Senior developer, RAVEN (github.com/idaholab/raven)
- Python, LaTeX, C++, Conda, Bash

Internships

- 2012 INL, MOOSE Deployment packages and regression testing
- 2011 LANL, Discrete maximum principle for iMC equations
- 2010 INL, MARMOT Frenkel pair distribution R&D
- 2009 AREVA, BLEU effective enrichment research
- 2008 AREVA, CASMO4 and MICROBURN-B2, benchmarking

COMPUTING SKILLS

Extensive use of Python (Conda, Pandas, Xarray, SKLearn, Statsmodels, OOP/Functional), Git, Bash
Experience with C++, MatLab, Visual Basic

SAMPLE PUBLICATIONS

- P. W. Talbot, C. Rabiti, et al, "Correlated Synthetic Time Series Generation using Fourier and ARMA signal processing," Int. J. Energy Res. 2020; 1-12. https://doi.org/10.1002/er.5115
- A. Epiney, C. Rabiti, P. Talbot, et al, "Economic analysis of a nuclear hybrid energy system in a stochastic environment including wind turbines in an electricity grid", Applied Energy 2020; 260, 114227
- P. W. Talbot, et al, "Analysis of Differential Financial Impacts on LWR Load-Following Operations", INL report INL/EXT-19-55614, 2019
- K. Frick, P. Talbot, et al, "Evaluation of Hydrogen Production Feasibility for a Light Water Reactor in the Midwest", INL report INL/EXT-19-55395, 2019
- A. Epiney, C. Rabiti, P. Talbot, et al, "Case Study: Nuclear-Renewable-Water Integration in Arizona", INL report INL/EXT-18-51369, 2018
- C. Rabiti, A. Epiney, P. W. Talbot, et al, "Status Report on Modeling and Simulation Capabilities for Nuclear-Renewable Hybrid Energy Systems", INL Report INL/EXT-17-43441, 2017
- 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

- ORCID: 0000-0002-9672-9044
- OSTI: `https://www.osti.gov/search/orcid:0000000296729044`
- Publons (journal reviews): `https://publons.com/researcher/3839497/paul-talbot/`

MEMBERSHIPS

Reviewer: *Energies*, ANS, ANS M&C
Technical Program Committee, ANS M&C 2019
Member, American Nuclear Society

References available on request.