

# Steven P. Hamilton

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- CITIZENSHIP** United States of America
- EDUCATION**
- EMORY UNIVERSITY Atlanta, GA  
Doctor of Philosophy in Computational Mathematics, May 2011  
GPA: 3.92  
Dissertation: *Numerical Solution of the  $k$ -Eigenvalue Problem*  
Advisor: Michele Benzi
- GEORGIA INSTITUTE OF TECHNOLOGY Atlanta, GA  
Master of Science in Nuclear Engineering, May 2007  
GPA: 4.00  
Thesis: *A Time-Dependent Slice Balance Method for High-Fidelity Radiation Transport Computations*  
Advisor: Cassiano de Oliveira
- GEORGIA INSTITUTE OF TECHNOLOGY Atlanta, GA  
Bachelor of Science in Nuclear and Radiological Engineering, May 2006  
GPA: 4.00
- EXPERIENCE**
- OAK RIDGE NATIONAL LABORATORY, April 2011–Present Oak Ridge, TN  
Research and Development Staff, Radiation Transport Group
- Coordinate the coupling of the Denovo radiation transport code to the AMP nuclear fuels performance code
  - Assist in development and testing of numerical methods in Denovo
- LOS ALAMOS NATIONAL LABORATORY, Summer 2008 Los Alamos, NM  
Computational Physics (CCS-2) Intern  
Mentor: Jim Warsa
- Developed and implemented novel algorithms to remedy negative solutions in finite element discretizations of the radiation transport equation
  - Developed framework for Krylov subspace acceleration of nonlinear fixup processes
- OAK RIDGE NATIONAL LABORATORY, Summer 2006 Oak Ridge, TN  
Reactor Analysis Group Intern  
Mentor: Kevin Clarno
- Assisted in development of 3-D slice-balance radiation transport solver
  - Implemented Krylov eigenvalue solver using (P)ARPACK software libraries
- FLORIDA POWER & LIGHT, Summer 2004-05 Juno Beach, FL  
Reactor Engineering/Nuclear Fuels Intern
- Automated documentation process for special nuclear material inventories
  - Performed statistical analyses concerning neutron absorber degradation in spent fuel pools
  - Developed improved guidelines for storage of spent fuel assemblies based on computational models

**COMPUTER SKILLS**

*Languages:* Fortran 90/95, C++, MATLAB, Python

*Software:* SCALE Package, MCNP, Trilinos

*Operating Systems:* Unix/Linux

**TEACHING**

EMORY UNIVERSITY, Fall 2009-Spring 2010 Atlanta, GA

Lead Instructor, Mathematics & Computer Science Department

- Planned and delivered lectures for undergraduate Calculus I (Math 111) and Linear Algebra (Math 221) courses
- Set grading rubric and assigned grades

GEORGIA INSTITUTE OF TECHNOLOGY, Fall 2004-Fall 2005 Atlanta, GA

Teacher's Assistant, Mathematics Department

- Led recitation sessions for undergraduate students in calculus and differential equations
- Tutored students in wide range of mathematics courses

**AWARDS**

DOE Computational Science Graduate Fellowship (2007-present)

Participant, 1st Gene Golub SIAM Summer School and 2nd International Summer School on Numerical Linear Algebra, Selva di Fasano, Italy (June 2010)

Georgia Tech DOE/Exelon Fellowship (2006-07)

President's Fellowship, Georgia Tech School of Mech. Eng. (2006-07)

Woodruff Scholarship, Georgia Tech School of Mech. Eng. (2004-06)

Henry Ford II Scholarship, Georgia Tech College of Engineering (2005)

National Merit Scholarship (2002-06)

**REFEREED PUBLICATIONS**

S. Hamilton, M. Benzi, E. Haber, "New Multigrid Smoothers for the Oseen Problem," Numerical Linear Algebra with Applications 17 (2010), pp. 557-576.

W. Stacey et. al., "Advances in the Sub-Critical, Gas-Cooled, Fast Transmutation Reactor Concept," Nuclear Technology 159 (2007), pp. 72-105.

**CONFERENCE PROCEEDINGS**

S. Hamilton, M. Benzi, "Eigensolvers for Radiation Transport Applications," proceedings of 11th Copper Mountain Conference on Iterative Methods, Copper Mountain, CO (April 2010).

S. Hamilton, M. Benzi, J. Warsa, "Negative Flux Fixups in Discontinuous Finite Element  $S_N$  Transport," proceedings of 2009 International Conference on Mathematics, Computational Methods and Reactor Physics, Saratoga Springs, NY (May 2009).

S. Hamilton, M. Benzi, E. Haber, "New Smoothers for the Oseen Problem," proceedings of 14th Copper Mountain Conference on Multigrid Methods, Copper Mountain, CO (March 2009).

S. Hamilton, K. Clarno, C. de Oliveira, "Error Control in a Time-Dependent Slice-Balance Method," proceedings of the ANS Winter Conference, Washington, D.C. (Nov. 2007).

S. Chiu, S. Hamilton, B. MacLaren, C. Sommer, and F. Willis, "Fuel Cycle Analysis of a Subcritical Fast, Gas-Cooled Transmutation Reactor," proceedings of ANS Winter Conference, Albuquerque, NM (Nov. 2006).

K. Clarno, V. de Almeida, E. d'Azevedo, C. de Oliveira, S. Hamilton, "GNES-R: Global Nuclear Energy Simulator for Reactors, Task 1: High-Fidelity Neutron Transport," proceedings of PHYSOR-2006 Topical Meeting, Vancouver, B.C. (Sept. 2006).