

MICHAEL L. HALL

Work Address

P. O. Box 1663, MS-D413
Los Alamos National Laboratory
Los Alamos, NM 87545
505-665-4312

Home Address

1325 43rd St.
Los Alamos, NM 87544
505-662-2130

Objective: I would like to develop numerical models of physical systems and publish the results.

This resume is also available at <http://www.lanl.gov/Hall/resume/> in a more detailed form.

Education

- **Ph. D. in Nuclear Engineering, March 1988** North Carolina State University, Raleigh, NC
Thesis title: Numerical Modeling of the Transient Thermohydraulic Behavior of High Temperature Heat Pipes for Space Reactor Applications.
GPA: 4.00/4.00. **Minor:** Mathematics. **Advisor:** Dr. J. Michael Doster
- **B. S. in Nuclear Engineering, May 1983** North Carolina State University, Raleigh, NC
GPA: 3.90/4.00. Graduated Summa Cum Laude in three years.

Areas of Knowledge

- Extensive experience in numerical methods, especially in the numerical solution of ordinary differential equations and coupled systems of partial differential equations.
- Extensive physical modeling experience, primarily in
 - radiation transport, radiation hydrodynamics, neutronics, diffusion and magnetohydrodynamics (spherical harmonics (P_N) and simplified spherical harmonics (SP_N) methods, discrete ordinates (S_N), Monte Carlo techniques), and
 - fluid dynamics (multi-phase, multi-component flow; surface tension modeling; heat and mass transfer; kinetic evaporation-condensation models; rarefied gas dynamics; melt front propagation models).
- Experience with linear algebra (Conjugate Gradient and other Krylov methods, algebraic multigrid), regression (curve-fitting), root-finding, optimization and other various numerical techniques.
- Extensive experience with modern massively parallel computing systems, in particular with the Unix/Linux operating system (including system administration), various computer languages (Fortran95, m4, L^AT_EX and friends, scripting languages, Makefiles, elisp, awk, HTML, perl), and various architectures (Current: Intel/Linux, Compaq/Linux, Compaq/Tru64Unix, Apple/Darwin, SGI/IRIX; Historical: Sun, Cray, HP, Thinking Machines, Vax).

Work Experience

4/88-Present Los Alamos National Laboratory - worked as a Technical Staff Member on various projects in the area of numerical modeling. Projects included:

- parallel computational physics on unstructured meshes (the CÆSAR code package);
- radiation transport (hydrodynamics) on unstructured meshes (the Augustus and Spartan packages);
- magnetohydrodynamics on unstructured meshes (the Magnum package);
- high-speed flow modeling with the PAGOSA code;
- neutronic modeling for the Accelerator Driven Assembly (ADA) project;
- code development (the Klaxon code) to model the thermohydraulic, high temperature, sonic gas flow of hydrogen in the Nuclear Thermal Rocket (NTR);
- transient thermohydraulic heat pipe modeling (the THROHPUT code);

- target/blanket design for the Accelerator Transmutation of Waste (ATW) project;
- development of the SIMMER-III code, which numerically models liquid metal fast breeder reactors (LMFBRs) during core disruptive accidents;
- modifications of a large production code (500,000 lines of FORTRAN) used for weapons design.

5/85-8/85 Los Alamos National Laboratory - worked with the Safety Code Development Group of the Energy Division (Q-9) as a practicum for my DOE fellowship.

Honors

- Graduated from the Engineering Honors Program, which included advanced classes and an individual project. My project was a numerical thermohydraulic model of a Pressurized Water Reactor during natural circulation.
- Selected Outstanding Senior in the Nuclear Engineering Department.
- Leader of the team of three students that won the 1983 American Nuclear Society Student Design Competition.

Fellowships & Scholarships

- Nuclear Engineering, Health Physics, and Radioactive Waste Management Fellowship from the Department of Energy, United States Government, administered by Oak Ridge Associated Universities (8/83-8/87).
- National Merit Scholarships (8/80-5/81 and 8/80-5/83).
- Institute of Nuclear Power Operations Scholarship (8/81-5/83).
- Bechtel Scholarship (8/82-5/83).

Affiliations

Professional and Honorary Societies

- Lifetime Member of Sigma Xi (ΣX) the Scientific Research Society (Associate Member: 4/89-11/90, Full Member: 11/90-Present).
- Member of the American Nuclear Society (Intermittent student member: 1980-1988, Full member: 1988-2000, editor of Topical Meeting Proceedings).

Honor Societies

- Lifetime Member of Phi Kappa Phi ($\Phi K \Phi$) Honor Society (1/82-Present). *Membership requirement: place in the top 3% of the junior class.*
- Lifetime Member of Tau Beta Pi (TBP), Engineering Honor Society (12/81-Present). *Membership requirement: place in the top 12.5% of the junior class while enrolled in an engineering curriculum.*
- Member of Pi Mu Epsilon (PiME) Mathematics Honor Society (4/86-Present).

High IQ Societies

- Member of Mensa (3/86-Present). *Membership requirement: score in the top 2% (98th percentile) on any standard IQ test.*
- Member of Intertel (93). *Membership requirement: score in the top 1% (99th percentile) on any standard IQ test.*
- Member of the International Society for Philosophical Enquiry (ISPE) (1/96-12/99). *Membership requirement: score in the top 0.1% (99.9th percentile) on any standard IQ test.*