



U.S. DEPARTMENT OF
ENERGY

Office of
Science

DOE
Computational Science Graduate Fellowship
(DOE-CSGF)

Barbara Helland

August 25, 2010

DOE CSGF

- **Started in 1992 because of the critical importance of computational science to DOE's core missions and a recognition of our nation's growing and continuing need for broadly trained advanced computational scientists in government laboratories, academia and industry**
 - 16 classes have completed the fellowship
 - 4 classes are in progress including the incoming class starting Sept. 1, 2010
- **Requires that fellows**
 - plan and follow a course of study that transcends the bounds of traditional academic disciplines
 - participate in a 12-week research experience at a DOE lab in an area of research outside of the student's dissertation subject
- **Funded by both ASCR and ASC**

Of 530 applications received in 2010, 21 new fellows were accepted



Disciplinary Distribution – 2009 vs. Historic

Academic Grouping	2010	Alumni
Engineering	28.6% (18)	46.1% (112)
Physical Sciences	30.1% (19)	25.9% (63)
Biological Sciences & Engineering	25.4% (16)	8.7% (21)
Computer Science & Applied Mathematics	15.9% (10)	18.9% (46)
Social Science (geography)	0.0% (0)	0.4% (1)



Schools Attended by Current Fellows: 3/2010

California Institute of Technology	3	Stanford University	4
Carnegie Mellon University	1	Texas A&M University	1
Colorado State University	1	University of California, Berkeley	2
Columbia University	1	University of California, Davis	2
Cornell University	5	University of California, San Diego	2
Emory University	1	University of Chicago	1
Harvard University	3	University of Colorado at Boulder	1
Harvard/MIT	1	University of Illinois at Urbana-Champaign	3
Iowa State University	1	University of Memphis	1
Johns Hopkins University School of Medicine	1	University of Michigan	3
Massachusetts Institute of Technology	7	University of Minnesota	1
North Carolina State University	2	University of Texas	3
Northwestern University	1	University of Washington	2
Princeton University	3	University of Wyoming	1
Rice University	4	Yale University	1
Rutgers University	1		

69 fellows as of September 1, 2010



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Program

- **Eligibility**

- U. S. citizens or permanent resident aliens pursuing a PhD in scientific or engineering disciplines with an emphasis in high-performance computing
- First or second year of graduate study or,
- Exceptional senior undergraduates who can meet all the requirements

- **Benefits**

- Up to four years of support
- Full tuition and required fees will be paid during the appointment period.
- Yearly stipend of \$36,000
- Academic allowance of \$5,000 the first year and \$1,000 in the remaining years for the professional development of the fellow



Obligations

- **Full time enrollment**
- **Program of study (POS)**
 - that will provide a solid background in three areas:
 - a scientific or engineering discipline,
 - computer science and
 - applied mathematics.
 - completed prior to the start of the third year of the fellowship
 - changes in the POS may be made only with the advance consent of the **DOE CSGF steering committee**.
- **Practicum (research assignment) -- to broaden the fellows' experience outside the main thesis path and to make them become better aware of the areas that define computational science.**
 - at participating DOE research laboratory
 - at least one twelve-week period
 - completed before the end of the second year of the fellowship.
 - additional financial allowance is provided to cover extra expenses during this time
- **Annual fellowship meeting**



Practicum Coordinators

Laboratory	Coordinator
Ames Laboratory	Mark Gordon
Argonne National Laboratory	Ray Bair
Bettis Atomic Power Laboratory	Stephen Vinay III
Brookhaven National Laboratory	Jim Davenport
Fermi National Laboratory	Ruth Pordes
Idaho National Laboratory	Glen Hansen
Knolls Atomic Power Laboratory	Thomas Sutton
Lawrence Berkeley National Laboratory	Dan Martin
Lawrence Livermore National Laboratory	Fred Streitz
Los Alamos National Laboratory	Aric Hagberg
National Renewable Energy Laboratory	Steven Hammond
Oak Ridge National Laboratory	James Hack
Pacific Northwest National Laboratory	Chris Oehmen
Princeton Plasma Physics Laboratory	William Tang
Sandia National Laboratories - CA	Alex Lindblad
Sandia National Laboratories - NM	Heath Hanshaw
Savannah River National Laboratory	James Becnel

Since inception of program in 1992, fellows have performed over 297 practicums at DOE labs



CSGF Alumni: Where are they now?

Of the 219 alumni who we have employment information:

- 26 % were or are at DOE
- 30 % Industry
- 33 % Academics
- 3 % Graduate Students
- 8 % Other



STANFORD
UNIVERSITY



Duke University

P&G



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Alumni at DOE Laboratories

ANL: Jeff Hammond, Post Doc, Stefan Wild, Post Doc, Allan Wollaber

Bettis: Stephen Vinay III

LANL: Joshua Coe, Post Doc, William Daughton, Timothy Germann, Aric Hagberg, Nathaniel Morgan, Sam Schofield

LBNL: Daniel Martin, Jarrod Chapman, Post Doc, Mary Dunlop, Post Doc

LLNL: Teresa Bailey, Allison Baker, Brian Gunney, Jeff Hittinger, Thomas Epperly, Matthew McNenley, Elsie Simpson Pierce

ORNL : Judith Hill , Richard Mills, Asegun Henry, Post Doc

PNNL: Christopher Gesh, Kevin Glass, Glenn Hammond, Christopher Oehman

Sandia–CA: Alex Lindblad, Obioma Uche, Post Doc, Aron Cummings, Post Doc

Sandia–NM: Nathan Crane, Heath Hanshaw, James Morrow, Elijah Newren, Post Doc, Laura Painton Swiler, Michael Wolf, Post Doc, David Rogers, Post Doc

Recognitions

- **Jon Wilkening, an assistant professor in mathematics at UC Berkeley, received an 2010 NSF Faculty Early Career Development Award (CAREER) to conduct research in optimization and continuation methods in fluid mechanics. *As part of his five-year award, Wilkening also plans to host students in DOE's Computational Science Graduate Fellowship program.***
- **Oliver Fringer, assistant professor in Civil and Environmental Engineering at Stanford received the ONR Young Investigator award in 2008 and was awarded the Presidential Early Career Award for Scientists and Engineers in 2009.**

Program Review

“This relatively small, but incredibly effective program has succeeded in the critical area of advance scientific computing by operating a program that attracts and selects students through a competitive process that results in an enhanced graduate education in this important field. Over its 15 years of operation the program has developed effective techniques, is attracting excellent students, and is producing well-trained computational scientists and engineers.”

2006 Review of DOE Computational Science Graduate Fellowship Program

