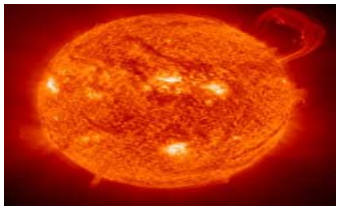
Academic Alliances Update

6th HEDSA General Meeting

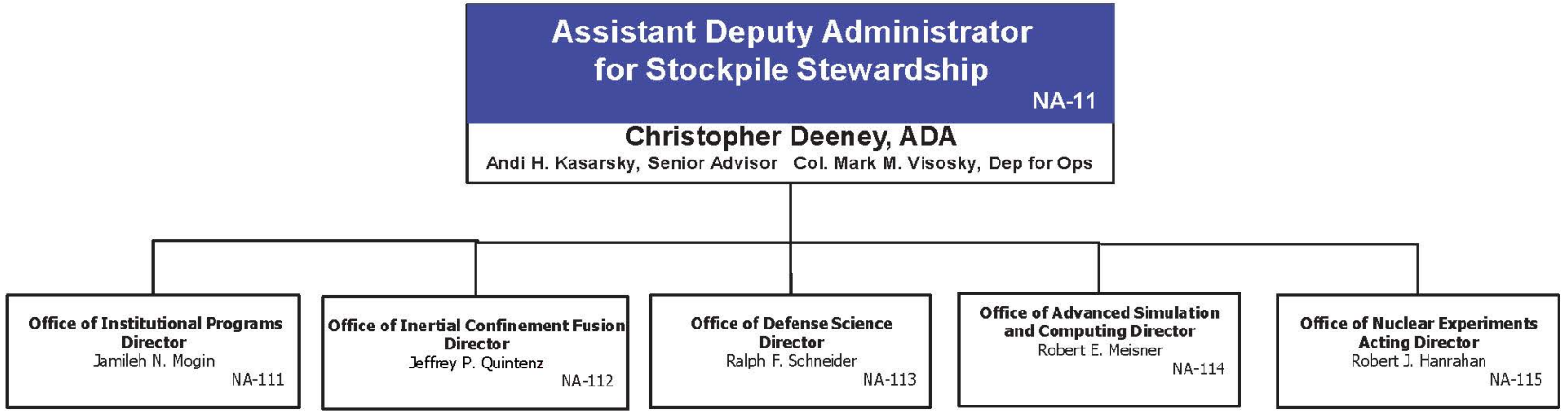
November 16, 2011

Jeff Quintenz, Lois Buitano, Kirk Levedahl,
Terri Batuyong, Keith LeChien and Ralph Schneider
Office of Stockpile Stewardship
DOE/NNSA



Office of Stockpile Stewardship (NA-11)

National Nuclear Security Administration



Academic Programs

- **Joint Program in High Energy Density Laboratory Plasmas (HEDLP)**
- **Other NNSA programs:**
  - **Stewardship Science Academic Alliances**
    - **Grants**
    - **Centers of excellence**
  - **National Laser Users Facility (NLUF)**
  - **Stewardship Science Graduate Fellowship (SSGF) Program**

Stewardship Science Academic Alliances Objectives

The objectives of the SSAA program are to:

- Support the U.S. scientific community by funding research projects at universities in the areas of fundamental science and technology of relevance to Stockpile Stewardship, with a focus on those areas not supported by other federal agencies, and for which there is a recruiting need within the NNSA/DP laboratories;

- Establish a pipeline of students trained in critical skills* for our laboratories;

**A critical skill is any skill that is required to perform the functions that support the NNSA mission and shall meet at least one of the following attributes: (1) The skill and related proficiency can only be acquired after some extended period of explicit on-the-job training/experience (three years or more); (2) Candidates for the skill position are difficult to recruit or employees with the skill are difficult to retain; and (3) Skill needed in immediate term (within next five years) to ensure overlap and knowledge transfer with outgoing employees before skills set disappears.*

Administrator D'Agostino with faculty and students at the 2008 SSAA Symposium

Stewardship Science Academic Alliances Objectives (Cont.)

The objectives of the SSAA program are to:

- Provide advanced experimental measurement techniques in areas of Condensed Matter Physics and Materials Science, Hydrodynamics, Fluid Dynamics, and Low-Energy Nuclear Science;

- Provide opportunities for intellectual challenge and collaboration by promoting scientific interactions between the academic community and scientists at the NNSA laboratories;

- Increase the availability of unique experimental facilities sited at the NNSA laboratories to the broader academic community, particularly for collaborations in areas of relevance to Stockpile Stewardship; and

- Develop and maintain a long-term recruiting pipeline to the NNSA laboratories by increasing the visibility of the NNSA scientific activities to the U.S. faculty and student communities.

Stewardship Science Academic Alliances (SSAA) Solicitation

National Nuclear Security Administration

Funding Opportunity Announcement Number DE-FOA-0000611

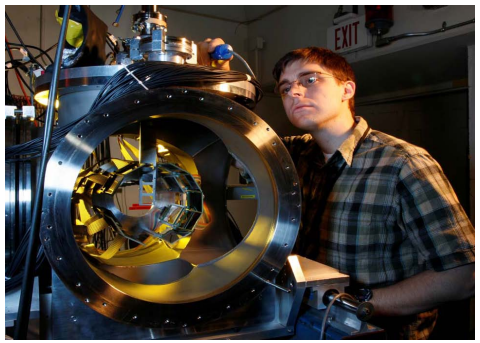
Planned Issue Date: December 2011

Planned Deadline: February 2012

Research Areas:

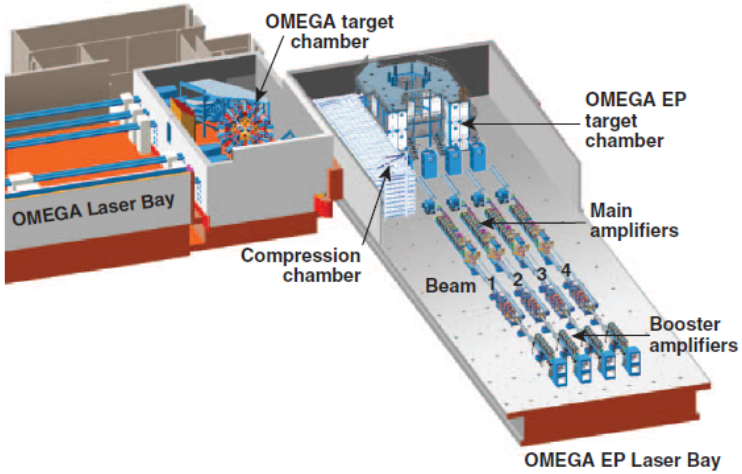
- *Properties of Materials under Extreme Conditions and/ or Hydrodynamics (grants and Centers)*
- *Low Energy Nuclear Science (grants and Centers)*
- *Radiochemistry (grants and Centers)*
- *High Energy Density Physics (Centers Only)*

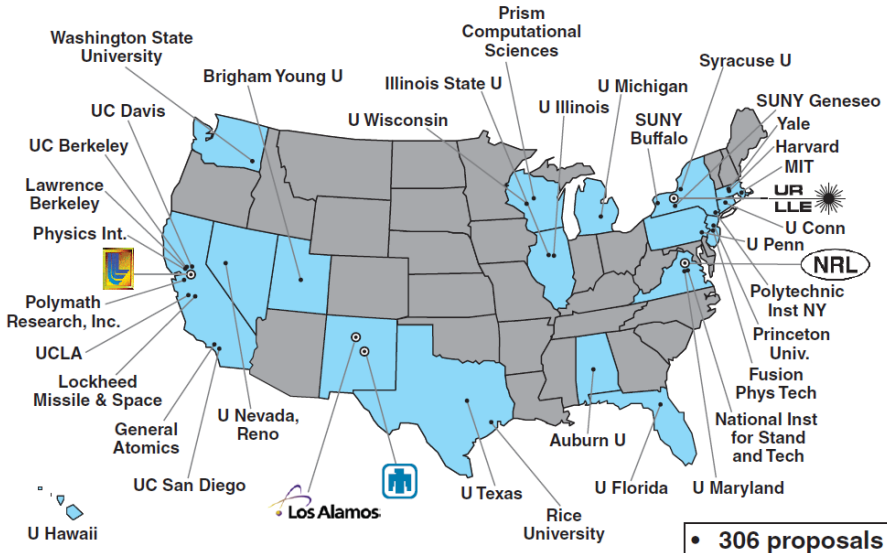
Visit grants.gov in for the full announcement.



The National Laser Users' Facility (NLUF) Program allows University/Business users access to Omega Facility time

- NLUF provides basic science access to the Omega Laser Facility.
- NNSA runs a peer-reviewed solicitation for University / Business users (began 1979).
- Current user funding is $1.6 million per year with additional $800k for targets, two-year grant cycle.
- FY11-FY12: 11 PI's with ~15% of Omega Facility time.
- An NLUF solicitation for FY13-FY14 will occur in Q2 FY12.
  - L. Buitano, Program Manager
- Funding levels and fraction of facility time are likely to remain similar to FY12.





Fellowship Opportunities

SSGF
STEWARDSHIP SCIENCE GRADUATE FELLOWSHIP

Department of Energy National Nuclear Security Administration

Stewardship Science Graduate Fellowship

The Department of Energy National Nuclear Security Administration Stewardship Science Graduate Fellowship (DOE NNSA SSGF) program provides outstanding benefits and opportunities to students pursuing a Ph.D. in areas of interest to stewardship science, such as **properties of materials under extreme conditions and hydrodynamics, nuclear science,** or **high energy density physics.** The fellowship includes a 12-week research experience at either Lawrence Livermore National Laboratory, Los Alamos National Laboratory or Sandia National Laboratories.

BENEFITS

- $36,000 yearly stipend
- Payment of all tuition and fees
- $1,000 yearly academic allowance
- Yearly conferences
- 12-week research practicum
- Renewable up to four years

APPLICATIONS DUE JANUARY 18, 2012

IMAGES TOP: At Sandia National Laboratories, high magnetic fields on the aluminum side of this magnetically launched aluminum/copper flyer drive it into diamond targets at tens of kilometers per second, generating enormous pressures and shock waves in the diamond.

MIDDLE: Circular aluminum structures create magnetic fields in Los Alamos National Laboratory's Dual Axis Radiographic Hydrodynamic Test accelerator, focusing and steering a stream of electrons.

BOTTOM: A "keyhole" target for a shock timing experiment is positioned on the ignition target insertion cryostat in the cryogenic target positioning system of the National Ignition Facility at Lawrence Livermore National Laboratory.

Images courtesy of respective laboratories.

APPLY ONLINE

The DOE NNSA SSGF program is open to senior undergraduates or students in their first or second year of graduate study. Access application materials and additional information at:

www.krellinst.org/ssgf

FOR MORE INFORMATION

Krell Institute | 1609 Golden Aspen Drive, Suite 101
Ames, IA 50010 | 515.956.3696
email: ssgf@krellinst.org | www.krellinst.org/ssgf

National Nuclear Security Administration

KRELL INSTITUTE

This is an equal opportunity program and is open to all qualified persons without regard to race, gender, religion, age, physical disability or national origin.

20 YEARS BUILDING A COMMUNITY OF LEADERS
DOE CSGF 1991-2011

Department of Energy

Computational Science Graduate Fellowship

The Department of Energy Computational Science Graduate Fellowship (DOE CSGF) program provides outstanding benefits and opportunities to students pursuing doctoral degrees in fields of study that utilize high-performance computing to solve complex problems in science and engineering. Now celebrating its 20th anniversary, the fellowship has driven the expansion of computational science, encouraging its acceptance as the "third pillar" of scientific discovery.

BENEFITS

- $36,000 yearly stipend
- Payment of all tuition and fees
- Yearly conferences
- $5,000 academic allowance in first year
- $1,000 academic allowance each renewed year
- 12-week research practicum
- Renewable up to four years

APPLICATIONS DUE JANUARY 10, 2012

IMAGES
TOP: Shock waves in a rocket nozzle with a turbulent boundary layer. 150M grid point simulation of a planar nozzle showing incoming turbulent boundary layer as it passes through the bottom lambda shock and forms a large separated region. Image courtesy of Britton Olson, DOE CSGF fellow, work completed at Lawrence Livermore National Laboratory.
MIDDLE: Judith Hill (DOE CSGF alumna) is a research and development associate in the computational math group at Oak Ridge National Laboratory.
BOTTOM LEFT: Anagun Henry (DOE CSGF alumnus) is a fellow at the DOE Advanced Research Projects Agency - Energy.
BOTTOM RIGHT: Oliver Fringer (DOE CSGF alumnus) is an assistant professor of civil and environmental engineering at Stanford University.

FOR MORE INFORMATION

Krell Institute
1609 Golden Aspen Drive, Suite 101 | Ames, IA 50010
email: csgf@krellinst.org | www.krellinst.org/csgf

APPLY ONLINE

The DOE CSGF program is open to senior undergraduates or students in their first or second year of doctoral study. Access application materials and additional information at:

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U.S. DEPARTMENT OF ENERGY | Office of Science

National Nuclear Security Administration

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NNSA and Office of Science jointly sponsored a Workshop on Basic Research Directions for User Science at NIF

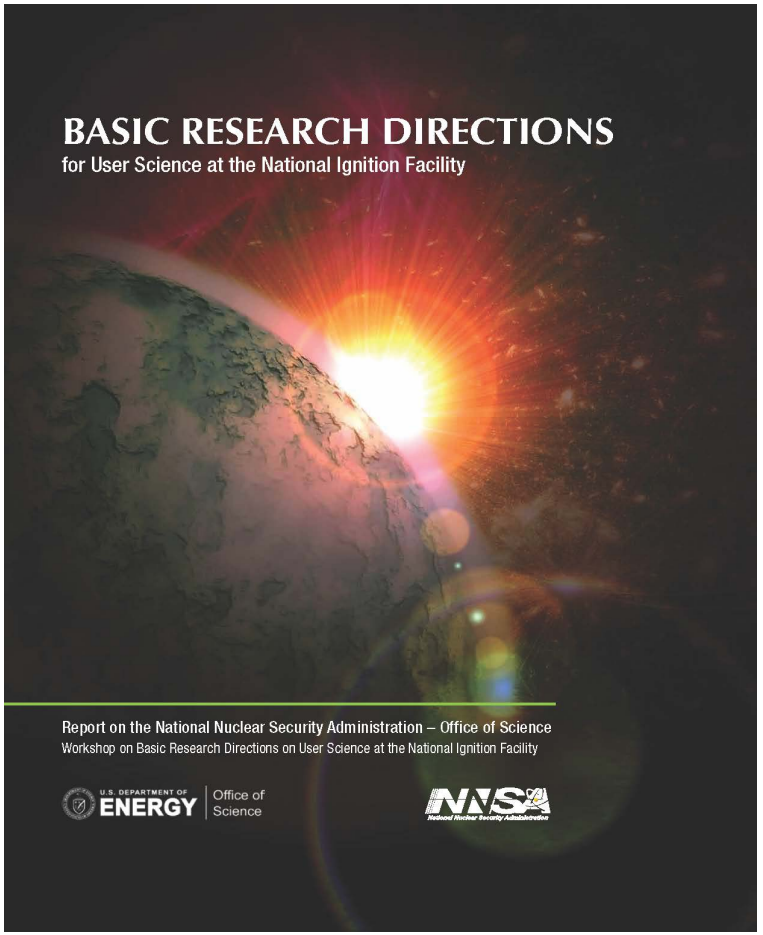
When: May 2011

Who: ~100 Leading researchers from Labs and universities, foreign and domestic.

Scope: Laboratory astrophysics, nuclear physics, materials in extremes and planetary physics, and beam and plasma physics.

Focus: Decadal research directions for User Science on the NIF and specific implementation/governance challenges.

Message: Community enthusiastically concluded that NIF Science represents a suite of diverse and exciting opportunities that merit appropriate financial and intellectual investments.



Website: http://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/nif_final_%20draft_100311_js_JH--high%20res.pdf