

**U.S. DEPARTMENT OF ENERGY
NATIONAL NUCLEAR SECURITY ADMINISTRATION
OFFICE OF INTERNATIONAL NUCLEAR SAFEGUARDS**

**Nuclear Nonproliferation International Safeguards
Graduate Fellowship Program**



Deadline for Applications for 2018-2019
February 1, 2018

Awards Announced Mid-April 2018

Administered by:
**The University of South Carolina Aiken through a Cooperative Agreement with
the South Carolina Universities Research and Education Foundation**

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INTRODUCTION TO THE NUCLEAR NONPROLIFERATION INTERNATIONAL SAFEGUARDS GRADUATE FELLOWSHIP PROGRAM

The Department of Energy (DOE) National Nuclear Security Administration's (NNSA) Office of International Nuclear Safeguards (OINS) is a comprehensive, multi-million-dollar program dedicated to developing the policies, concepts, technologies, expertise, infrastructure, and human capital necessary to sustain and enhance international nuclear safeguards. DOE/NNSA is the principal federal sponsor of the Nuclear Nonproliferation International Safeguards (NNIS) Graduate Fellowship Program.

Increasing costs for graduate education and demand for employees with bachelor's degrees in nuclear-related science and engineering has reduced the number of qualified students seeking advanced degrees in those fields. Simultaneously, demand for Ph.Ds. in the radiopharmaceutical, nuclear power, defense, and waste management industries means that fewer scientists and engineers *with* advanced degrees are available to pursue careers in nuclear nonproliferation and safeguards. This situation is also coupled with the retirement of a broad range of nuclear scientists and engineers, who were educated in the 1970, has exacerbated this problem.

This fellowship provides financial support for exceptional students pursuing technical doctoral research relevant to the field of international safeguards. Participating universities foster partnerships between science/engineering programs and programs focused on nuclear nonproliferation and safeguards policy. Armed with both deep technical expertise and policy understanding, NNIS Fellows are primed to take on the exciting and challenging work of international nuclear safeguards.

TECHNICAL FOCUS

The objective of the NNIS Graduate Fellowship is to identify and educate highly trained scientists and engineers to take on the challenges and opportunities of international nuclear safeguards. NNIS fellows must demonstrate the safeguards-impact of their funded research, and an intent to pursue a career that will positively contribute to the international safeguards regime. To that end, applications shall describe:

- The potential safeguards impact of their research. For example, will research results enhance the International Atomic Energy Agency's (IAEA) technical capabilities, or improve safeguards approaches? Why does this matter? The best applications will link research proposals to priorities identified in the [IAEA Long-Term Safeguards R&D plan](#), or other indications of IAEA and/or United States Government (USG) safeguards interest/concern.
- The specific existing or future technical safeguards challenge that the research addresses. For example, if research intends to improve containment/surveillance (C/S) capabilities, how specifically will that be achieved? By designing a more sensitive monitor? Improving telemetry? Developing a new material for use in tamper-evident seals?
- The dearth of viable fixes to the technical challenges they propose to address.

APPLICATION PROCEDURES

ELIGIBILITY

This fellowship is open to all U.S. Citizens about to enroll in, or currently enrolled in a qualified course of study at a participating university (see the Technical Focus) with at least one full year of graduate work remaining at the beginning of September 2018. Candidates with dual citizenship must notify the University of South Carolina Aiken (USCA), Special Programs, Charleston Office. It is the policy of DOE and its program administrators, the South Carolina Universities Research and Education Foundation (SCUREF) and USCA, to recruit and nominate participants without regard to race, age, gender, sexual orientation, religion, color, national origin, physical or mental disability, or special disabled or veteran status.

APPLICATION DEADLINE

The current competition cycle for this program is from November 2017 – February 2018. *The USCA Special Programs, Charleston Office must receive all parts of the application by February 1, 2018.* GRE scores are required for a complete application. GRE scores earned before 2008 will not be accepted. USCA will not process late and/or incomplete applications. Please include the fellowship program name on all correspondence.

A complete application includes the following components:

- Application Form
- Three (3) References
- Official Transcripts (undergraduate and graduate transcripts must be sent directly from the university registrar)
- GRE scores (GRE code 5949 – scores must be sent directly from ETS)

Forms are located at www.scuref.org. Applicants should submit all materials electronically through the SCUREF website. If you are unable to submit the application electronically, please contact Nicole Huchet at (843) 793-1079, nicoleh@usca.edu.

FELLOWSHIP OBLIGATIONS

PROGRAMS AT PARTICIPATING UNIVERSITIES

Fellowship awardees are required to attend a university participating in the NNIS Fellowship program. To become a participating university, interested faculty members must submit an application, which can be found at www.scuref.org. Universities selected to participate in the program will have demonstrated a commitment to advancing nuclear nonproliferation international safeguards education and creating a sustainable academic program. The list of participating universities and university fellowship coordinators is provided at the end of this booklet. Interested fellowship applicants may contact any fellowship coordinator directly for detailed information related to the university's nuclear nonproliferation international safeguards program.

ENROLLMENT

Fellowship appointment is contingent upon acceptance into an approved program at a participating university. The initial fellowship appointment is for a 12-month period, typically renewable for up to a total of 48 months for Doctoral candidates, and 24 months for Master's candidates. Further extensions will be considered on a case by case basis. Prorated for previously completed graduate work, appointments may be shorter than the maximum allowable number of months. Throughout their fellowship period, fellows must be enrolled full-time at an approved university, working towards the degree described in their application. During the summer months, fellows conduct relevant research, enroll in summer classes, complete a practicum assignment, or do a combination of any of these activities.

TERMS OF APPOINTMENT

Each fellow must agree to the terms and conditions of appointment delineated in their appointment letter and elsewhere. This includes agreement to pursue the course of study and research described in their application, participate in at least one summer practicum, and entertain DOE/DOE contractor employment opportunities. Fellows must inform the USCA Special Programs, Charleston Office of their current addresses and any address changes, and must complete any evaluation/assessment questionnaires sent by USCA for program information and/or evaluation during the fellowship and for at least five years after the end of their fellowship.

ANNUAL RENEWAL

Fellowships are reviewed for renewal annually. A renewal form and official transcripts must be submitted to the USCA Special Programs, Charleston Office by February 1 of each year. All awards and renewals are subject to the continuing availability of funding.

PRACTICUM

Fellows are required to participate in at least one practicum for at least three months at a designated DOE/NNSA facility to gain applied experience. Fellows typically complete their practicums during the summer and select a practicum that can be used to support their thesis research. Fellows are responsible for securing their own practicum appointments by contacting the appropriate laboratory coordinator, and completing a practicum request form. In certain cases, practicum assignments may be approved at European Union designated laboratories. *Please contact the USCA Special Programs, Charleston Office at (843)793-1079 or nicoleh@usca.edu for additional information.*

Fellows may be required to apply for security clearance upon acceptance of a practicum appointment at a DOE/NNSA facility or an affiliated federal agency.

EVALUATION OF APPLICATIONS

Applicants are responsible to ensure that his or her application is complete. After the application deadline, the USCA Special Programs, Charleston Office will distribute the NNIS applications to an independent panel for review. The review panel is composed of university, DOE/NNSA, and national laboratory personnel directly responsible for instruction and/or research in the international safeguards and nuclear nonproliferation fields. The DOE/NNSA program sponsor reviews the applications and the panel's recommendations and approves the final selection.

Applications are evaluated based on academic performance, relevant coursework, GRE scores, demonstrated commitment to the field of international nuclear safeguards, and references. Other factors, including geographical criteria safeguards human capital needs are also considered. The number of fellowships awarded annually is contingent on the number of fellows graduating from the program and the availability of funds.

After the DOE/NNSA approves the award recipients, USCA Special Programs, Charleston Office notifies applicants of their award status. Notification usually occurs by April 15. USCA Special Programs, Charleston Office is responsible for the daily administration of the NNIS on behalf of the program sponsors, and assists fellows and universities with questions regarding stipends, payment of tuition and fees, practicum assignments, travel, and related issues.

PROGRAM BENEFITS

The maximum value of any individual award, including stipend, tuition and fees, and summer practicum, is \$50,000/yr.

STIPEND

Fellows receive a monthly stipend of no more than \$2,200. Fellows will also receive an additional Dislocation Allowance of \$500 per month (prorated) while on a practicum assignment.

The DOE/NNSA attempts to provide adequate funding to its fellowship participants to meet the cost of graduate school, but other awards, prizes, and similar payments (including veteran's benefits) that do not require a product or service may be accepted. USCA must be informed in advance if a fellow plans to accept a research assistantship or other employment. Payment received for such employment may result in an equivalent deduction from the fellow's stipend. USCA reserves the right to withdraw the fellowship if the fellow receives compensation without notifying USCA as to the nature and extent of any payment.

TUITION AND FEES

The USCA Sponsored Research, Charleston Office pays tuition and fees directly to the participating university upon receipt of invoice. Optional, refundable, and penalty fees (such as late registration and duplication fees) are not payable by USCA. Health insurance fees will be paid by only if they are required for all enrolled

graduate students at the fellow's university. All tuition and fee charges must be certified consistent with those made to regular graduate students and necessary for enrollment into the graduate program. In no case will the annual cost of tuition, fees, and stipend exceed \$50,000 per fellow.

In August of each year, the USCA Special Programs, Charleston Office notifies the bursar's office at each university regarding invoicing procedures for fellowship students. Students will receive a copy of this correspondence and should retain this copy for use in discussing any billing errors with their university's bursar office.

TRAVEL

Travel expenses must be approved by the USCA Special Programs, Charleston Office and the sponsor prior to actual travel and must be U.S. General Services Administration (GSA)-compliant. In general, travel reimbursements are considered for seminars, conferences, and workshops associated with this program or any meeting for which the sponsor requests attendance. Full or partial reimbursements may be authorized depending on the availability of funds. Fellows should submit a Travel Request Form to the USCA Special Programs, Charleston Office at least 30 days before the anticipated travel dates.

Travel expenses will be reimbursed for the fellow to travel to/from the practicum site providing that the distance is more than 50 miles one way from the fellow's university. It is the fellow's responsibility to find the least expensive mode of travel. No expenses are paid for food or lodging at the practicum site. All travel must be authorized in advance by the USCA Special Programs, Charleston Office and the sponsor and must be GSA compliant.

Full or partial travel reimbursement is also considered on occasions requiring the fellow to consult with the university graduate committee and/or deliver a presentation of thesis/dissertation research.

THESIS RESEARCH AT PARTICIPATING DOE/NNSA DESIGNATED CENTERS

A fellow may request to spend all or part of the time working on thesis/dissertation research at one of the participating DOE/NNSA-approved facilities listed at the end of this booklet. Off-campus research requires that the fellow complete a request form and have it endorsed by the faculty advisor, facility coordinator, and facility advisor. Facility advisors must agree to mentor and supervise the fellow, and coordinate activities with facility personnel throughout the research assignment. Facility advisors should also serve on the fellow's graduate thesis research committee, if approved by the university.

PUBLICATION ACKNOWLEDGMENT

DOE/NNSA and USCA encourage fellows to publish reports and articles in scientific and engineering journals and present posters or papers at conferences. All materials must undergo appropriate security and export control reviews required by the university and/or laboratory at which research was conducted prior to submission. The fellow must submit any articles, reports, posters, papers, theses, etc. to the USCA Special Programs, Charleston Office at least three weeks before submission for publication, presentation or publication. These works should show the joint affiliation of the fellow with the university and, if appropriate, with the laboratory in which the research was conducted, and acknowledge fellowship support with the following:

"This research was performed under appointment to the Nuclear Nonproliferation International Safeguards Fellowship Program sponsored by the National Nuclear Security Administration's Office of International Nuclear Safeguards (NA-241)."

NUCLEAR NONPROLIFERATION INTERNATIONAL SAFEGUARDS FELLOWSHIP PROGRAM
PARTICIPATING UNIVERSITIES

<p>CLEMSON UNIVERSITY Timothy DeVol, Ph.D. Environmental Engineering and Earth Sciences 342 Computer Court Anderson, SC 29625-6510 864-656-1014 devol@clemson.edu</p>	<p>UNIVERSITY OF CALIFORNIA, BERKELEY Rachel Slaybaugh, Ph.D. Department of Nuclear Engineering 4173 Etcheverry Hall Berkeley, CA 94720-1731 570-850-3385 slaybaugh@berkeley.edu</p>
<p>COLORADO SCHOOL OF MINES Jeffrey King, Ph.D. Nuclear Science and Engineering Program 1500 Illinois Street, Hill Hall 201 Golden, CO 80401 303-384-2133 kingjc@mines.edu</p>	<p>UNIVERSITY OF FLORIDA James Baciak, Ph.D. 549 Gale Lemerand Drive Gainesville, FL 32611-6400 352-273-2131 jebaciak@mse.ufl.edu</p>
<p>GEORGIA INSTITUTE OF TECHNOLOGY Steven Biegalski, Ph.D. The George W. Woodruff School of Mechanical Engineering 770 State Street, Boggs Building, Suite 3-44 Atlanta, GA 30332-0745 404-385-5973 steven.biegalski@me.gatech.edu</p>	<p>UNIVERSITY OF ILLINOIS, CHAMPAIGN James F. Stubbins, Ph.D. Dept of Nuclear, Plasma and Radiological Engineering 216 Talbot Laboratory, MC-234 104 S. Wright St. Urbana, IL 61801 217-333-6474 jstubbin@illinois.edu</p>
<p>MASSACHUSETTS INSTITUTE OF TECHNOLOGY Richard Lanza, Ph.D. Department of Nuclear Science and Engineering Kennedy School 77 Massachusetts Avenue, Room NW14-2222 Cambridge, MA 02319 617-253-2399 lanza@mit.edu</p>	<p>UNIVERSITY OF MICHIGAN Sara Pozzi, Ph.D. Department of Nuclear Engineering and Radiological Sciences 2355 Bonisteel Boulevard 1902 Cooley Building Ann Arbor, MI 48109-2104 734-615-4970 pozzisa@umich.edu</p>
<p>UNIVERSITY OF MISSOURI, COLUMBIA J. David Robertson, Ph.D. Department of Chemistry 125 Chemistry Building Columbia, MO 65211 573-882-2240 robertsonjo@missouri.edu Or contact Ms. Gayla Neumeyer at 573-882-8366, neumeyerg@missouri.edu</p>	<p>UNIVERSITY OF NEVADA, LAS VEGAS Alexander Barzilov, Ph.D. Department of Mechanical Engineering 4505 S. Maryland Parkway Box 454027 Las Vegas, Nevada 89154-4027 702-895-4325 alexander.barzilov@unlv.edu</p>
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NUCLEAR NONPROLIFERATION INTERNATIONAL SAFEGUARDS FELLOWSHIP PROGRAM
 PARTICIPATING PRACTICUM CENTERS AND COORDINATORS

<p>ARGONNE NATIONAL LABORATORY Justin Reed Argonne National Laboratory 9700 S. Cass Ave, Bldg. 315 Argonne, IL 60439 Phone: 630-252-3138 jkreed@anl.gov www.anl.gov</p>	<p>BROOKHAVEN NATIONAL LABORATORY Lisa Toler, Ph.D. Brookhaven National Laboratory Bldg. 510B; PO Box 5000 Upton, NY 11973 631-344-2276 toler@bnl.gov www.bnl.gov</p>
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<p>PACIFIC NORTHWEST NATIONAL LABORATORY Rebecca Jones Pacific Northwest National Laboratory 902 Battelle Boulevard PO Box 999, MSIN K8-50 Richland, WA 99352 509-371-7745 rl.jones@pnnl.gov www.pnnl.gov</p>	<p>SANDIA NATIONAL LABORATORIES Amir Mohagheghi, Ph.D. Sandia National Laboratories PO Box 5800 Albuquerque, NM 87185-1373 505-844-6910 ahmohag@sandia.gov www.sandia.gov</p>
<p>SAVANNAH RIVER NATIONAL LABORATORY Tim Hasty Savannah River National Laboratory Road 1, Building 773-42A Aiken, SC 29808 803-725-8641 timothy.hasty@srnl.doe.gov www.srnl.doe.gov</p>	<p>Y-12 NATIONAL SECURITY COMPLEX Jill Cooley Y-12 National Security Complex PO Box 2009 Oak Ridge, TN 37831-8112 865-576-6858 jill.cooley@cns.doe.gov www.y12.doe.gov</p>

NUCLEAR NONPROLIFERATION INTERNATIONAL SAFEGUARDS FELLOWSHIP PROGRAM
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