**NATIONAL SCIENCE FOUNDATION**
**2415 EISENHOWER AVENUE**
**ALEXANDRIA, VIRGINIA 22314**

**NSF 20-064**

# Dear Colleague Letter: United States -Ireland-Northern Ireland R&D Partnership

March 26, 2020

Dear Colleagues:

The United States (U.S.), Northern Ireland (NI), and the Republic of Ireland (RoI) have come together to form a unique partnership as a way of increasing the level of collaborative R&D among researchers across the three jurisdictions that will generate innovation and lead to improvements in society. The objective of U.S.-Ireland R&D Partnership is to encourage trilateral, collaborative research projects that address significant research challenges, particularly in the areas of nanoscale science and engineering, sensors and sensor networks, telecommunications, energy and sustainability, and cybersecurity. These thematic areas have been identified as representing a unique opportunity for collaborative research and are internationally recognized as potentially pivotal fields in the 21st century.

## PARTICIPATING ENTITIES

National Science Foundation - United States

- Directorate for Biological Sciences (BIO)
- Directorate for Computer & Information Science & Engineering (CISE)
- Directorate for Engineering (ENG)
- Directorate for Geosciences (GEO)
- Directorate for Mathematical & Physical Sciences (MPS)
- Directorate for Social, Behavioral & Economic Sciences (SBE)
- Directorate for Education & Human Resources (EHR)
- Office of International Science & Engineering (OISE)

Science Foundation Ireland - Republic of Ireland

- Science for Society Directorate
- Strategy and Transformation Directorate

- Science for the Economy Directorate

For more information on the Science Foundation Ireland participation, see https://www.sfi.ie/funding/funding-calls/us-ireland-rd-partnership/.

Department for the Economy - Northern Ireland

- Higher Education Policy and Finance Division

For more information on the Department for the Economy participation, see https://www.economy-ni.gov.uk/articles/higher-education-international-research-0.

## OVERVIEW OF SUBMISSION PROCESS

Under this U.S.-Ireland R&D Partnership opportunity, Principal Investigators (PI) from the U.S., NI, and RoI collaborate to generate a single, joint trilateral proposal that goes through a single review at the National Science Foundation (NSF). This single proposal, single review approach eliminates uncertainty that can arise from multiple review processes at multiple funding agencies. The U.S. PI is responsible for submitting the single, collaborative proposal to the relevant NSF program in accordance with that program's guidelines. There must be at least one PI from each jurisdiction on the single proposal. For successful proposals, NSF supports the U.S. component, Science Foundation Ireland (SFI) supports the RoI component, and the Department for the Economy in Northern Ireland (DfE) supports the NI component. NSF support for research and education in the thematic areas highlighted above will be through competitive awards via existing programs. The participating entities also plan to collaborate to support Center-to-Center collaborations in these fields. No specific funding is set aside for this partnership.

## STEP-BY-STEP SUBMISSION PROCESS

1. U.S., RoI, and NI PIs identify an opportunity to collaborate on a topic within the scope of NSF, SFI, and DfE.
2. The U.S. PI, with the RoI and NI PIs, discusses the idea with the cognizant NSF program manager for the NSF program or funding opportunity to which the proposal will be submitted to ensure suitability.
3. RoI and NI PIs notify SFI and DfE, respectively, of their intention to prepare and submit a proposal via an Intention to Submit form.
    A. In order to participate in a U.S.-Ireland R&D Partnership proposal to NSF, Republic of Ireland and Northern Ireland PIs are expected to send an 'Intention to Submit' form to the relevant funding agency, that is SFI or DfE, respectively.
    B. For NSF programs with a fixed deadline, this form should be submitted by Research Institutions on behalf of Republic of Ireland and Northern Ireland PIs,

respectively, at least 10 weeks in advance of the NSF full proposal submission deadline.

    C. For NSF programs without a fixed deadline, SFI and DfE will assess Intention to Submit forms triannually. Intention to Submit forms should be submitted by Research Institutions on behalf of Republic of Ireland and Northern Ireland PIs by one of the following deadlines: 1st of February, 1st of June, or 1st of October.

4. RoI and NI PIs submit a "close-to-final" proposal to SFI and DfE, respectively, in advance of the U.S. PI submitting the final proposal to NSF. RoI and DfE use the "close-to-final" proposals to check the budget and the broad approach (the detailed merit review of the final proposal is conducted later at NSF).

    A. For NSF programs with a fixed deadline, proposers should simultaneously submit identical copies of close-to-final proposal to SFI and DfE no later than 6 weeks in advance of the NSF submission deadline.

    B. For NSF programs without a fixed deadline, SFI and DfE will assess close-to-final proposals triannually. RoI and NI proposers should simultaneously submit identical copies of close-to-final proposals to SFI and DfE no later than 4 weeks after submitting an Intention to Submit Form to one of the deadlines specified above.

5. Should SFI and DfE approve of the "close-to-final" proposal, each will prepare a Funding Commitment Letter (FCL). This letter is an upfront guarantee that SFI and DfE will fund the RoI and NI components of the project, respectively, should the final proposal be recommended for award through NSF. The U.S. PI submits these letters with the final proposal to NSF (see special proposal preparation requirements below for further instructions). Proposers should not make major changes to proposals after SFI and DfE have issued the FCLs.

6. The U.S. PI submits the final proposal to NSF for merit review.

    A. The U.S. PI should submit the tri-jurisdictional, integrated proposal to the appropriate NSF program funding research and education in the areas of nanoscale science and engineering (Attachment A), sensors and sensor networks (Attachment B), telecommunications (Attachment C), energy and sustainability (Attachment D), international research experience for students through the Office of International Science and Engineering (Attachment E), and cybersecurity (Attachment F).

    B. Deadlines and other specifications vary by program. U.S. PIs should refer to the NSF Proposal and Award Policies and Procedures Guide for information on submitting a proposal to NSF. Additional instructions, including deadlines, may be given in announcements for individual programs or funding opportunities to which proposals are submitted. PIs must follow these additional specific instructions. All proposals should be submitted to NSF via the NSF FastLane System, Research.gov or Grants.gov.

7. NSF communicates the outcome of the merit review to the U.S. PI. The U.S. PI communicates the result to the RoI and NI PIs, who inform SFI and DfE, respectively.

## SPECIAL PROPOSAL PREPARATION REQUIREMENTS

- Proposals submitted under the U.S.-Ireland R&D Partnership should address the value added of the U.S.-RoI-NI collaboration, why such collaboration is beneficial versus a single-nation project, and contributions of the three jurisdictions.
- The title of the proposal to NSF should indicate "U.S.-Ireland R&D Partnership".
- Proposals should include the full project description for all three jurisdictions. The project descriptions for the RoI and NI jurisdictions should be included in the Supplementary Documents section of the proposal together with the Funding Commitment Letters from SFI and DfE.
- The proposal to NSF should only include the U.S. funds requested from NSF on the NSF Budget form. A detailed breakdown of funding requested from SFI and DfE should be included as a Supplementary Document. The Budget Justification should address the full project budget (U.S., RoI, and NI funding items).
- The RoI and NI PIs should be included as Senior Personnel (non-funded).
- A biographical sketch for the RoI and NI PIs should be provided in the "Biographical Sketches" section of the proposal with a format that conforms to the NSF PAPPG guidelines. Additional information about NSF-approved formats for the biographical sketch is available at https://www.nsf.gov/bfa/dias/policy/biosketch.jsp.
- "Current and Pending Support" information does not have to be provided for RoI and NI PIs. Since this is a required section of an NSF proposal, however, please use the NSF fillable PDF form to indicate for each RoI and NI investigator designated as Senior Personnel (non-funded) that Current and Pending Support information is not required. Additional information about NSF-approved formats for current and pending support is available at: https://www.nsf.gov/bfa/dias/policy/cps.jsp.
- A "Results of Prior Support" Section is NOT required for the RoI and NI personnel.
- Include Collaborators and Other Affiliation (COA) Information for the RoI and NI PIs. This information allows for an easier review. Listing the RoI and NI PIs as Senior Personnel (non-funded) will prompt inclusion of their COA information.
- A post-doctoral mentoring plan is not needed if funding for postdocs is requested only from SFI and/or DfE. Including one, however, may be helpful to reviewers.

## CENTER-TO-CENTER-SPECIFIC SUBMISSIONS

Under the U.S.-Ireland R&D Partnership, in addition to individual investigator-driven collaborations, NSF, SFI, and DfE support Research Center-based collaborations between three jurisdictions. The Center-to-Center (C2C) mechanism is open to existing SFI-funded Research Centers, NSF-funded Engineering Research Centers (ERC), and researchers in centers in Northern Ireland.

The mechanism is a three-step process. First, Centers are required to submit a two-page

white paper/Expression of Interest that is reviewed by NSF, SFI, and DfE. If successful, the proposers will be invited to submit a nearly final full proposal no later than 6 weeks in advance of the NSF submission deadline. Finally, if SFI and DfE feel the proposal is worthy of support, proposers will then submit the final C2C full proposal, together with the annual report of the NSF ERC, for review at the ERC's annual site visit. This specific NSF deadline is 5 weeks in advance of the ERC's annual site visit.

Contact Sandra Cruz-Pol, Program Director, Division of Engineering Education and Centers, Directorate for Engineering, for more information (scruzpol@nsf.gov; 703-292-2928).

## REVIEW PROCESS

Proposals submitted under the U.S.-Ireland R&D Partnership are reviewed along with other proposals submitted to the same program or funding opportunity in accordance with the standard NSF merit review criteria of intellectual merit and broader impacts of the proposed effort and additional review criteria where specified in the relevant program or funding opportunity. In addition, reviewers will be asked to assess the international collaboration in terms of:

- mutual benefit(s);
- true intellectual collaboration among all participating partners;
- benefits to be realized from the expertise/specialized skills, facilities, sites and/or resources of the international counterparts; and
- active research engagement of students and early-career researchers, where such individuals are engaged in the project.

The review will also adhere to the NSF merit review process for conflict of interests and confidentiality policies. NSF plans to share reviews and any panel summaries (without reviewer identities) with SFI and DfE for the purpose of coordinating funding of research.

## FUNDING DECISIONS

The outcome of the full NSF merit review process determines whether the trilateral, collaborative proposal will be funded.

## POST-AWARD PROCESS

PIs are expected to adhere to the reporting requirements of their own funding agency in terms of reporting templates and submission deadlines. Progress on the collaborative research activity should be shared with all three funding agencies.

## CONTACT

For more information on the U.S.-Ireland R&D Partnership, contact the Office of International Science and Engineering (OISE). Please refer to the relevant OISE contact listed here: OISE Regional and Country Contacts | NSF - National Science Foundation.

Sincerely,
Rebecca Keiser
Office Head
Office of International Science and Engineering

William Easterling
Assistant Director
Directorate for Geosciences

Suzi Iacono
Office Head
Office of Integrative Activities

Anne Kinney
Assistant Director
Directorate for Mathematical and Physical Sciences

Arthur Lupia
Assistant Director
Directorate for Social, Behavioral, and Economic Sciences

Margaret Martonosi
Assistant Director
Directorate for Computer and Information Science and Engineering

Karen Marrongelle
Assistant Director
Directorate for Education and Human Resources

Dawn Tilbury
Assistant Director
Directorate for Engineering

Joanne Tornow
Assistant Director
Directorate for Biological Sciences

## ATTACHMENT A. NANOSCALE SCIENCE AND ENGINEERING (NSF PARTICIPATION IN THE NATIONAL NANOTECHNOLOGY INITIATIVE)

All participating research and education directorates and the Office of International Science and Engineering (OISE) accept proposals with an international component following a competitive selection process. NSF grants generally support only expenses made by the U.S. universities for research and education, for U.S. participants in international interactions such as conferences, and for research visits abroad by U.S. students and faculty.

The participating directorates and offices are: Computer and Information Science and Engineering (CISE), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), Social, Behavioral and Economic Sciences (SBE), Education and Human Resources (EHR), and Office of International Science and Engineering (OISE).

General information about NNI-specific programs can be found on www.nsf.gov/nano, on NSF's core programs on http://www.nsf.gov/funding/azindex.jsp, and on OISE international programs on https://www.nsf.gov/dir/index.jsp?org=OISE.

NSF supports nanoscale science and engineering through various programs. The following program directors may provide further information:
CISE: Sankar Basu, sabasu@nsf.gov
ENG: Khershed Cooper, khcooper@nsf.gov
Nora Savage, nosavage@nsf.gov
GEO: David Lambert, dlambert@nsf.gov
MPS: Lynnette Madsen, lmadsen@nsf.gov
SBE: Frederick Kronz, fkronz@nsf.gov
EHR: Barry Sloane, fsloane@nsf.gov
OISE: Please refer to the relevant OISE contact listed here:
OISE Regional and Country Contacts | NSF - National Science Foundation

International supplements: Awards made in previous fiscal years for individual investigators, groups, centers, and user facilities can be supplemented by the programs. The NSF award database can be accessed from the relevant OISE contact listed here:
OISE Regional and Country Contacts | NSF - National Science Foundation.

## ATTACHMENT B. SENSORS AND WIRELESS SENSOR NETWORKS

The participating directorates and offices are: Biological Sciences (BIO), Computer and Information Science and Engineering (CISE), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), Social, Behavioral and Economic Sciences (SBE), Education and Human Resources (EHR), and Office of International Science and Engineering (OISE).

NSF grants generally support only expenses made by the U.S. universities for research and education, for U.S. participants in international interactions such as conferences, and for research visits abroad by U.S. students and faculty.

General information on NSF's core programs can be found at http://www.nsf.gov/funding/azindex.jsp, and on OISE International programs at https://www.nsf.gov/dir/index.jsp?org=OISE.

NSF supports sensor and wireless sensor network research and education through various programs. The following program directors may provide further information:
BIO: Steve Ellis, stellis@nsf.gov
CISE: Ann Von Lehmen, avonlehm@nsf.gov
ENG: Bruce Hamilton, bhamilto@nsf.gov
Ruyan Guo, rguo@nsf.gov
GEO: Alexandra Isern, aisern@nsf.gov
MPS: Jonathan Williams, jonwilli@nsf.gov
SBE: Robert O'Connor, roconnor@nsf.gov
OISE: Please refer to the relevant OISE contact listed here:
OISE Regional and Country Contacts | NSF - National Science Foundation

International supplements: Awards made in previous fiscal years for individual investigators, groups, centers, and user facilities can be supplemented by the programs. The NSF award database can be accessed from www.nsf.gov.

## ATTACHMENT C. TELECOMMUNICATIONS RESEARCH

The National Science Foundation supports a variety of programs directed towards telecommunications research and education. Areas of interest include: wireless devices, components, and networks; optics and photonics devices and networks; sensor devices and networks; signal processing; network architecture design, modeling and simulation; security; packaging, thermal management and energy; enhancing access to the radio spectrum, and future internet technology. Participating directorates and offices are Engineering (ENG), Computer and Information Science and Engineering, (CISE), Mathematical and Physical Sciences (MPS), and Office of International Science and Engineering (OISE). Participating directorates and offices accept proposals with an international component following a competitive selection process. NSF grants generally support only expenses made by the U.S. universities for research and education, for U.S. participants in international interactions such as conferences, and for research visits abroad by U.S. students and faculty.

General information on NSF's core programs can be found at http://www.nsf.gov/funding/azindex.jsp, and on OISE International programs at https://www.nsf.gov/dir/index.jsp?org=OISE.

NSF supports telecommunications research and education through various programs. The following program directors may provide further information:
ENG: Mohammod Ali, moali@nsf.gov
CISE: Ann Von Lehmen, avonlehm@nsf.gov
Deepankar Medhi, dmedhi@nsf.gov
MPS: Jonathan Williams, jonwilli@nsf.gov
OISE: Please refer to the relevant OISE contact listed here:
OISE Regional and Country Contacts | NSF - National Science Foundation

International supplements: Awards made in previous fiscal years for individual investigators, groups, centers, and user facilities can be supplemented by the programs. The NSF award database can be accessed from www.nsf.gov.

## ATTACHMENT D. ENERGY AND SUSTAINABILITY

The National Science Foundation supports fundamental research and education that underpins the development of innovative solutions to pressing problems in sustainability, especially research on sustainable and renewable energy technologies. This includes conceptual, theoretical, empirical, and computational research needed to further develop the basic science, engineering, education, and policy knowledge base, as well as address the coupled problems of sustainability - dealing directly with the energy-economy-environment dilemma - at both the individual factor and systems level. NSFs unique mandate to support all areas of science, engineering and science education allows it to fund research that will tackle complex system level problems of sustainability. Also included is research to investigate the fundamental role that social, economic, and political systems play in creating and addressing major issues in sustainability.

All participating research and education directorates and International Science and Engineering accept proposals with an international component following a competitive selection process. NSF grants generally support only expenses made by the U.S. universities for research and education, for U.S. participants in international interactions such as conferences, and for research visits abroad by U.S. students and faculty.

The participating directorates and offices are: Computer and Information Science and Engineering (CISE), Engineering (ENG), Geosciences (GEO), Mathematical and Physical Sciences (MPS), Social, Behavioral and Economic Sciences (SBE), Education and Human Resources (EHR), and Office of International Science and Engineering (OISE).

General information on NSF's core programs can be found at http://www.nsf.gov/funding/azindex.jsp, and on OISE International programs at https://www.nsf.gov/dir/index.jsp?org=OISE.

NSF supports energy and sustainability through various programs. The following program

directors may provide further information:
CISE: David Corman, dcorman@nsf.gov
ENG: Bruce Hamilton, bhamilto@nsf.gov
GEO: Barbara Ransom, bransom@nsf.gov
MPS: Anne-Marie Schmoltner, aschmolt@nsf.gov
SBE: Kristin Kuyuk, kkuyuk@nsf.gov
EHR: Barry Sloane, fsloane@nsf.gov
OISE: Please refer to the relevant OISE contact listed here:
OISE Regional and Country Contacts | NSF - National Science Foundation

International supplements: Awards made in previous fiscal years for individual investigators, groups, centers, and user facilities can be supplemented by the programs. The NSF award database can be accessed from www.nsf.gov.

## ATTACHMENT E. OFFICE OF INTERNATIONAL SCIENCE AND ENGINEERING (OISE)

NSF's Office of International Science and Engineering (OISE) serves as NSF's focal point for international science and engineering activities. OISE supports - either through its own programs or working with the other NSF directorates and offices - innovative awards and supplements that promote research excellence through new international collaboration and that develop the next generation of globally engaged scientists and engineers. OISE funds international research and education activities in all NSF-supported disciplines involving any region of the world. Researchers interested in international collaboration should consult both disciplinary and OISE program officers. The OISE Home Page is:
https://www.nsf.gov/dir/index.jsp?org=OISE.

NSF grants generally support only expenses made by the U.S. universities for research and education, for U.S. participants in international interactions such as conferences, and for research visits abroad by U.S. students and faculty. Relevant OISE programs include International Research Experiences for Students
https://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf19585&org=NSF.

## ATTACHMENT F: CYBERSECURITY

Tri-jurisdictional, integrated proposals to NSF addressing cybersecurity should only be submitted to and will only be accepted by the Secure and Trustworthy Cyberspace (SaTC) program. Proposals should follow the guidelines and instructions provided in the SaTC Program Solicitation at https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504709.