



April 26, 2019

The Honorable Charles Grassley
Chairman
Committee on Finance
United States Senate
Washington, DC 20510

Dear Chairman Grassley:

Thank you for your letter dated April 15, 2019 regarding foreign threats to our country's research infrastructure. The National Science Foundation (NSF) takes all matters of national security very seriously, and we work closely with our partners in academia, the federal law enforcement agencies, and the Administration to address foreign threats to taxpayer-funded research. I could not agree more that we must take all reasonable and necessary steps to ensure the integrity of federally-funded research.

As you noted, NSF was created by Congress in 1950, and charged with a mission to fund the most promising basic research across all disciplines of science, engineering, and education research. As the nation's fundamental research funding agency, NSF funds research and education in most fields of science and engineering through grants and cooperative agreements to more than 1,800 colleges, universities, K-12 school systems, businesses, informal science organizations, and other research organizations throughout the U.S.

The cornerstone of NSF is the merit-based, competitive proposal review process that fosters the highest standards of excellence and accountability—standards that have been emulated at funding agencies around the world. To evaluate which proposals have the greatest potential to promote the progress of science, reviewers seek to identify two key factors in every proposal: intellectual merit and broader impacts. Evaluating proposals on the basis of these factors ensures that the Foundation's activities are in the national interest. This focus on, and investment in, basic research is critical to the United States global leadership in innovation, our economic strength, and our national defense. Basic research is responsible for many of the technological advancements that we enjoy today—from the internet to touchscreen technology. Basic research has also saved lives through medical innovation and protected our troops through the development of strong materials like Kevlar. It has developed the tools for teaching the next generation of Americans, and it gives us insight into human behavior and social organizations.

Now more than ever, we live in a globalized world where international collaboration spurs transformative discovery and innovation. NSF chooses to collaborate with many nations because it strengthens U.S. research and education. In fact, groundbreaking innovations are often the product of international collaboration. Such was the case with our detection of gravitational waves in 2015 and the recent imaging of a black hole—both discoveries required global cooperation and investment.

NSF has developed criteria to determine when international engagement is appropriate. Consistent with our mission, any collaboration must expand knowledge in science, engineering, and learning. First, we expect every partner to contribute; the research should leverage the resources of all. Second, the benefit of cooperation must be clearly demonstrable, and results should be shared equitably. Lastly, we expect reciprocity. Such reciprocity includes not only the timely sharing of data and samples, but also recognition in all appropriate forms. Maintaining the right balance between collaboration at an international scale and protecting the taxpayer's interest in federally-funded science is critical to the United States long-term success.

Moving forward, NSF is working to do more to ensure the integrity of federally-funded research. As you mentioned in your letter, NSF has recently taken steps requiring our rotators to be citizens or in the process of applying for citizenship. NSF also recognizes the need for expert analysis and assessment so that the Agency can develop the best tools possible to address foreign influence concerns. NSF is working with an external group of senior advisors who possess both scientific and security-related expertise on a risk assessment of influence on basic research. This group will also provide recommendations on good practices for NSF and the research community to address these risks. In our responses below we enumerate additional next steps.

Committee Request #1: Please describe in detail the process by which NSF, and recipients of NSF funds for research purposes, conduct background checks of researchers and institutions prior to awarding grants.

NSF Response: The very large majority of NSF awards are made to organizations, not to individuals. In FY 2018, NSF made awards to more than 1,800 colleges, universities, and other private and public institutions in 50 States, the District of Columbia, and two U.S. territories. Seventy-seven percent of support for research and education programs was to colleges, universities, and academic consortia. Recipients of Federal funds must be able to demonstrate their ability to fully comply with the requirements specified in 2 CFR § 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*.

Formally, such policies are documented and disseminated to the academic research community through **NSF's Proposal & Award Policies & Procedures Guide**¹ (PAPPG). This document, in conjunction with the applicable standard award conditions incorporated by reference in the award, serves as the Foundation's implementation of 2 CFR § 200. Coverage includes the NSF award process, from issuance and administration of an NSF award through closeout. Guidance is provided regarding other grant requirements or considerations that either are not universally applicable or do not follow the award cycle. The PAPPG also implements other Public Laws, Executive Orders, and other directives insofar as they apply to grants and is issued pursuant to the authority of Section 11(a) of the NSF Act (42 USC § 1870).

Prior to issuing an award, NSF's Cost Analysis and Pre-Award Branch (CAP) may undertake one or more reviews to assess the awardee's capability to effectively administer NSF-funded awards. CAP can undertake pre-award reviews including proposal budget reviews to verify that costs are reasonable, allowable, and allocable in accordance with Federal regulations and NSF guidance; and personnel compensation reviews to verify that organizations maintain adequate records to support labor costs charged to NSF awards. CAP also performs several different types of reviews after an institution receives an award to promote stewardship of Federal funds and provide business assistance to awardees.

¹ https://www.nsf.gov/pubs/policydocs/pappg19_1/nsf19_1.pdf

Each NSF grantee has full responsibility for the conduct of the project or activity supported under an NSF grant and for the results achieved. In addition, an organization must have a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students, and postdoctoral researchers who will be supported by NSF to conduct research. NSF has the authority to address concerns that awardees are not meeting their obligations, or the terms and conditions of their awards, including the ability to suspend or terminate an award.

NSF reaffirms our long-standing policy, in place since 1978, requiring full disclosure of current and pending support for investigators submitting proposals to NSF so that NSF and external reviewers can adequately assess conflicts of interest and a researcher's capacity to conduct the proposed work (i.e., conflicts of commitment). As sources of research support diversify, NSF has continued to remind the community of the requirement to disclose all support—domestic, international, government, corporate, nonprofit, crowd-sourced, etc. NSF is currently in the process of developing a clear, standardized, web-based disclosure form for researchers to list all sources of current and pending support, which will provide NSF with the ability to better manage this data and ensure compliance with the disclosure requirements for all proposals submitted to the agency.

Committee Request #2: What rules, procedures, or regulations currently exist to prevent potential foreign actors from acquiring, altering, or duplicating taxpayer-funded research data and findings?

NSF Response: In today's increasingly competitive world for scientific discoveries, NSF understands the importance of our mission to promote the progress of science by, among other things, supporting basic, early-stage research, and to protect our national and economic security.

With respect to awards generally, NSF has tightened requirements on domestic institutions conducting research at foreign campuses. NSF's current PAPPG provides that "If the proposal includes funding to be provided to an international branch campus of a U.S. institution of higher education (including through use of subawards and consultant arrangements), the proposer must explain the benefit(s) to the project of performance at the international branch campus and justify why the project activities cannot be performed at the U.S. campus."

The disposition of rights to inventions made by small business firms and non-profit organizations, including universities and other institutions of higher education, during NSF-assisted research is governed by Chapter 18 of Title 35 of the USC, commonly called the Bayh-Dole Act. In accordance with a Presidential Memorandum entitled Government Patent Policy issued on February 18, 1983 and under the authority of Section 12 of the National Science Foundation Act of 1950, as amended (42 USC § 1871), NSF applies the policies of the Bayh-Dole Act to all its grantees.

Committee Request #3: How many staff and how much taxpayer money per year is budgeted to ensure compliance with and to identify and investigate potential violations of rules, procedures, and regulations concerning the foreign affiliations of researchers and financial contributions to them? Please provide a copy of the budget and all other supporting documentation for the past five years.

NSF Response: NSF works very closely with NSF's Office of Inspector General (OIG), an independent oversight office that reports directly to the National Science Board and Congress. The OIG is responsible for conducting audits, reviews, and investigations of NSF programs, and of organizations and individuals that apply for or receive NSF funding. The OIG conducts financial audits to determine whether awardees are misusing taxpayer funds, failing to report

financial support and conflicts of interest, and violations of rules, regulations, or policy including allegations of research misconduct (falsification, fabrication, and plagiarism).

NSF steadfastly enforces the policies to cooperate with the OIG, which is embodied in the *OIG Cooperation Directive*, first issued in 1991 and reissued most recently in 2018. Throughout NSF, cognizant staff are critical actors in maintaining the integrity of these programs. NSF staff have communicated to the OIG concerns about possible fraud, waste, and abuse in awards. Correspondingly, the OIG has shared evolving indicators of potential fraud and research security threats with NSF staff to inform administration of the awards.

NSF and OIG cooperation continues as the OIG's investigations reach critical stages, when funds are at immediate risk. First, NSF's Office of Budget, Finance and Award Management responds expeditiously to requests by the OIG to suspend or terminate awards due to its investigations. Similarly, when investigations mature to indictments or criminal or civil complaints, as filed by the U.S. Department of Justice, NSF's Suspension and Debarment Official, supported by the Office of General Counsel, acts swiftly upon recommendations by the OIG to issue suspensions. Upon follow-up recommendations by the OIG, NSF has issued debarments up to five years. Some cases have involved allegations of duplicate funding and undisclosed affiliations. In some cases, investigations have involved awards from multiple agencies, for which we are proud that the OIG and NSF have served as the leads in the corresponding investigation and suspension/debarment proceedings.

As the questions posed by Committee Request #3 fall under the OIG's authority, NSF has referred your request to the OIG for additional information—they will send the Committee a separate response letter.

Committee Request #4: With respect to the recipients of NSF funds for research purposes, how many systematic reviews, or audits, have been performed of those entities in the past five years for the purpose of identifying potential violations concerning foreign affiliations and financial contributions? Please list each entity and the results of the review.

NSF Response: The questions posed by Committee Request #4 fall under the OIG's authority, and in deference to the sensitivity of ongoing investigations, NSF has referred your request to the OIG for additional information—they will send the Committee a separate response letter.

Committee Request #5: What enforcement mechanisms are available to NSF to protect intellectual property created by and resulting from taxpayer-funded research and to hold accountable foreign agents and institutions for violating NSF policies and rules? Does NSF require additional statutory authorities to effectively punish and deter wrongdoers? If so, what are they?

NSF Response: Each NSF grantee has full responsibility for the conduct of the project or activity supported under an NSF grant and for the results achieved. NSF has the authority to address concerns that awardees are not meeting their obligations, or the terms and conditions of their awards, including the ability to suspend or terminate an award.

The disposition of rights to inventions made by small business firms and non-profit organizations, including universities and other institutions of higher education, during NSF-assisted research is governed by Chapter 18 of Title 35 of the USC, commonly called the Bayh-Dole Act. In accordance with a Presidential Memorandum entitled Government Patent Policy issued on February 18, 1983 and under the authority of Section 12 of the National Science Foundation Act of 1950, as amended (42 USC § 1871), NSF applies the policies of the Bayh-Dole Act to all its grantees.

As questions related to violations of these policies posed by Committee Request #5 also fall under the OIG's authority, NSF has referred your request to the OIG for additional information—they will send the Committee a separate response letter.

Committee Request #6: Please provide the Committee a list of all entities currently under investigation for employing individuals that failed to disclose contributions from foreign governments. Is this publicly available? If not, do you plan to make that list public? If not, why not?

NSF Response: The questions posed by Committee Request #6 fall under the OIG's authority, and in deference to the sensitivity of ongoing investigations, NSF has referred your request to the OIG for additional information—they will send the Committee a separate response letter.

Committee Request #7: Does NSF regularly work with the Justice Department, State Department, and/or the Intelligence Community to properly track, assess, and analyze threats from foreign actors of potential theft, improper disclosure or manipulation of data collected and results reached through taxpayer-funded research, and the corresponding impact or effect on national security? If not, why not? If so, please describe those agency relationships.

NSF Response: NSF coordinates its activities with many Departments and Agencies, including the Department of Justice and members of the Intelligence Community who possess Title 50 authorities. Consultations occur through formal interagency policy mechanisms and through bilateral discussions. In particular, NSF enjoys a deep and enduring relationship with the Department of State (DoS). The NSF consults the DoS on agreements with foreign partners. Although the Case-Zablocki Act (1 U.S.C. § 112b) only mandates coordination on binding agreements, the NSF transmits all agreements (binding and nonbinding) to DoS to ensure awareness of our activities. In addition, NSF, primarily through the Office of International Science and Engineering, coordinates with DoS Bureaus on a multitude of scientific activities.

The questions posed by Committee Request #7 also fall under the OIG's authority, and in deference to the sensitivity of ongoing investigations, NSF has referred your request to the OIG for additional information—they will send the Committee a separate response letter.

Committee Request #8: Please provide a list of all instances in the past five years in which the following occurred: (1) foreign actors used systematic and long-term efforts to influence NSF researchers; (2) foreign actors worked to transmit to other countries intellectual property produced by NSF-supported research; (3) foreign actors contributed resources to NSF-funded researchers in ways that could impact the integrity of the research; and (4) researchers failed to disclose foreign financial support. For each instance, please describe in detail the nature of the violation and whether a referral was made to the NSF Inspector General or the Justice Department.

NSF Response: The questions posed by Committee Request #8 fall under the OIG's authority, and in deference to the sensitivity of ongoing investigations, NSF has referred your request to the OIG for additional information—they will send the Committee a separate response letter.

Thank you for your continued leadership and commitment to ensure the safety of federally-funded research. Should you have any further questions, or if you or your staff would like to set up a briefing to discuss NSF's work on this important subject please contact Amanda Hallberg Greenwell, Head, Office of Legislative and Public Affairs at 703-292-8070.

Sincerely,

A handwritten signature in blue ink that reads "F. Fleming Crim". The signature is written in a cursive style with a large, prominent "F" and "C".

F. Fleming Crim
Chief Operating Officer