



# FUNDAMENTAL RESEARCH SECURITY

For decades, open and collaborative fundamental research has served as a scientific and economic boon to the U.S. and the world. The science and engineering enterprise, however, is put at risk when other governments endeavor to benefit from it without upholding the values of openness, transparency and reciprocal collaboration. Indeed, some governments are actively sponsoring activities that pose risks to this system, such as foreign-government-sponsored talent recruitment programs that incentivize behavior that is inconsistent with these values. NSF recognizes this threat and has been taking action to address it while also reinforcing that collaboration, including international collaboration, is integral to our continued scientific advancement. As part of those efforts, NSF commissioned the JASON advisory group, outside experts who specialize in both science and security, to conduct a study and recommend ways for NSF to protect research integrity and maintain balance between openness and security of scientific research.

## WHAT THE JASON GROUP FOUND

The JASON report's findings affirm many of the principles that have already been guiding NSF's efforts to address security in science, including the need to address the threat carefully, and with the engagement of stakeholders in research, law enforcement and intelligence. Among the themes that emerged from the study were the value of foreign scientific talent in the U.S. and the need to include disclosures of commitments and potential conflicts of interest in the notion of "research integrity." The report's findings are summarized below.

1. Foreign-born scientists and engineers in the United States make essential contributions to U.S. preeminence in science, engineering and technology today. Continuing to attract and retain such talent is essential for maintaining that leading position.
2. The United States upholds values of ethics in science, including objectivity, honesty, accountability, fairness and stewardship. These values protect research integrity.
3. Actions of the Chinese government and its institutions that are not in accord with U.S. values of science ethics have raised concerns about foreign influence in the U.S. academic sector.
4. The scale and scope of the problem remain poorly defined. Academic leadership, faculty and front-line government agencies lack a common understanding of foreign influence in U.S. fundamental research, possible risks and the possible detrimental effects of restrictions that might be enacted in response.
5. Conflicts of interest and commitment in the research enterprise can be broader than those that are strictly financial.
6. There are many stakeholders with responsibility for the integrity of fundamental research, from U.S. government agencies to individual scholars. Universities and research funding agencies have policies and guidelines regarding some of these responsibilities, but these are often insufficient for individuals to assess risk and take appropriate actions.
7. National Security Decision Directive (NSDD) 189 establishes a clear distinction between fundamental research and classified research. It remains a cornerstone to the fundamental-research enterprise.
8. Universities have mechanisms to handle Controlled Unclassified Information under existing categories, such as HIPAA, FERPA, Export control, and Title XIII. Controlled Unclassified Information is ill-suited to the protection of fundamental research areas.
9. International researchers in the United States are partners in its research enterprise, and, consequently, in the effort to strengthen research integrity nationally and globally.

## INTERESTED IN KNOWING MORE?

Read the full JASON report online at [www.nsf.gov/JASON\\_Security\\_Report](http://www.nsf.gov/JASON_Security_Report)

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## WHAT THE JASON REPORT CONCLUDED

“JASON concludes that many of the problems of foreign influence that have been identified are ones that can be addressed within the framework of research integrity, and that the benefits of openness in research and of the inclusion of talented foreign researchers dictate against measures that would wall off particular areas of fundamental research. We expect that a reinvigorated commitment to U.S. standards of research integrity and the tradition of open science by all stakeholders will drive continued preeminence of the United States in science, engineering, and technology by attracting and retaining the world’s best talent.”

## WHAT THE JASON REPORT RECOMMENDED

The JASON advisory group presented NSF with several recommendations. After receiving the report in December 2019, NSF began the process of considering them. The independent JASON group’s recommendations are:

1. Expand the scope of expectations under the umbrella of research integrity to include full disclosure of commitments and actual or potential conflicts of interest.
2. Failures to disclose commitments and actual or potential conflicts of interest should be investigated and adjudicated by the relevant office of NSF and by universities as presumptive violations of research integrity, with consequences similar to those currently in place for scientific misconduct.
3. NSF should take a lead in working with NSF-funded universities and other entities, as well as professional societies and publishers to ensure that the responsibilities of all stakeholders in maintaining research integrity are clearly stated, acknowledged and adopted. Harmonization of these responsibilities with those of other federal research-funding agencies is encouraged.
4. NSF should adopt and promulgate to all stakeholders project assessment tools that facilitate an evaluation of risks to research integrity for research collaborations and for all non-federal grants and research agreements.
5. Education and training in scientific ethics at universities and other institutions performing fundamental research should be expanded beyond traditional research integrity issues to include information and examples covering conflicts of interest and commitment.
6. NSF should support reaffirmation of the principles of NSDD-189 and should discourage the use of new Controlled Unclassified Information definitions as a mechanism to erect intermediate-level boundaries around fundamental research areas.
7. NSF should engage with intelligence agencies and law enforcement to communicate to academic leadership and faculty an evidence-based description of the scale and scope of problems posed by foreign influence in fundamental research, as well as to communicate to other government agencies the critical importance of foreign researchers and collaborations to U.S. fundamental research.
8. NSF should further engage with the community of foreign researchers in the United States to enlist them in the effort to foster openness and transparency in fundamental research, nationally and globally, as well as to benefit from their connections to identify, recruit and retain the best scientific talent to the United States
9. NSF and other relevant U.S. government agencies should develop and implement a strategic plan for maintaining our competitiveness for the top science and engineering talent globally, taking advantage of new opportunities for engagement that might arise, even as others become more challenging.

## DEFINING CONFLICTS OF INTEREST OR COMMITMENT

According to the JASON report, “A conflict of interest or commitment (COI/COC) can arise when one simultaneously serves two or more interests that do not align. A COI/COC can arise when a person fills two different roles: for example, that of a principal investigator for a university and an outside consultant for another university or company, a student that is also reporting on their activities to a foreign government, or a regulator with a financial stake in that which they are regulating. Of specific concern are COI’s that arise in the U.S. research enterprise when a principal investigator operates a laboratory at their own institution supported by federal or foundation funds while also operating a laboratory in another country supported by that country’s funds that carries out related research, unknown to the principal investigator’s home institution.”