# Report on Research Compliance Volume 20, Number 5. April 27, 2023
# Research Program Solicitation Could Include Four Topics

By Jane Anderson

The JASON report [1] provided four groups of illustrative research topics for a National Science Foundation (NSF) research program on research security, saying that these groups could appear within the format for an NSF Program Solicitation.

These four groups are:

- **Data collection and analysis.** "One of the key challenges in assessing research security risk has been the lack of relevant data," JASON said. "Establishing the scale and scope of the research security problem should be an essential ingredient in an NSF program for research-on-research security."

  NSF could, for example, create a controlled-access data pool of unclassified information for researchers working on this problem, JASON said. This could include case studies of research security breaches; collection and analysis focusing on the frequency and potential severity of security breaches; analysis of how unauthorized transmissions of research results have occurred; analysis of motivations for the premature or unauthorized transmission of research and how such actions are justified by the individuals involved; analysis of STEM fields that have been of greatest concern and the maturity level of the research when the results were inappropriately transmitted; and comparative assessment of policies of U.S. research institutions and analysis of best practices for research security.

- **Risk assessment and quantitative approaches**. "An area of tension between academic researchers and government agencies is the nature of the risk associated with breaches of research security in fundamental research," JASON said. "Because the research is ultimately intended for publication in the open literature, it may seem that there is little risk associated with failure to protect such research. However, this ignores damage to the academic enterprise that occurs from unapproved sharing of information from grant proposals under review or manuscripts being considered for publication."

  In addition, some researchers may aim to apply for patent protection, and that effort may be compromised by unapproved release of information, the report said. Overall, JASON said, "the consequences of loss of information are likely to be different in different fields, but in some extreme cases could be severe for economic and/or national security. However, imposing controls that restrict access to research areas could slow progress in critical research areas. Thus, it would be helpful to have reliable models of the effects of different control regimes on the development of research fields."

- **Education and training.** "Breaches of research security and the involvement of foreign governments in such breaches are emerging threats," JASON said. "Education and training will be required to help the research community understand the nature of the threat and to adopt measures to mitigate it."

  There are significant cultural differences between academics engaged in fundamental research and those who are well-versed in security risks, and those differences will pose a major challenge to the success of this effort, the report said.

"Many academics have regular interactions with foreign faculty, graduate students, and postdocs, and consider these to be critical to their research programs. Law enforcement and intelligence community agencies often lack an understanding of how academic research labs operate with respect to the relationships among faculty members and the researchers they supervise, and how those interactions differ across scientific disciplines. This problem is exacerbated by the inability to share confidential or classified information with the research community that might help them to understand the risks associated with breaches of research security," JASON said.

On what the report called "a more hopeful note," there are already mandated Responsible Conduct of Research training programs, which could be modified to better cover topics of research security, JASON said.

- **International cooperation and reduction of threats to research security.** "A major factor in the rise of the US in science and technology has been the nation's ability to attract and retain talented researchers from around the world," the report said.

"Many in the academic research community believe that the recent actions taken in the interest of research security have unfairly targeted Asian Americans, and that such actions may cause more damage to our competitiveness than breaches of research security. There are also growing concerns about reciprocity and transparency in international science collaborations, which must be balanced with the reality that, in some disciplines, progress can only be made by continuing to engage in such collaborations," the report said.

Therefore, JASON said, any NSF research program on research security should include "Assessment of international differences in the views of scientific research integrity and the implications for research security; Analysis of potential costs and benefits to US research security from actively recruiting and retaining students, and faculty from a broader range of countries. Extension of this analysis to underserved regions of the US; Considerations in balancing US interests with global interests and how to mitigate risk when global engagement is essential; [and] Analysis of possible threat reduction strategies and preservation of productive international open science ecosystems."

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