

Strengthening Integrity and Security of the U.S. Research Enterprise

“This important [JASON] report underscores the need for a robust, coordinated approach to strengthen the integrity and security of the U.S. research enterprise.”

- OSTP Director Kelvin Droegemeier in a news release: *NSF releases JASON report on research security*, December 11, 2019.



Risks to U.S. Science and Security in a Global Research Ecosystem

Research Integrity:

- Conflicts of interest / commitment
- Confidentiality of merit review process
- Protection of pre-publication data



Science and Security Goals at NSF

- Maintain the vibrant science and engineering community which relies on collaborations both globally and domestically
- Promote the norms, principles, and values of openness, transparency, and reciprocal collaboration
- Balance the open environment with the needs of security
- Better understand the risks, including the scale and scope
- Take action to mitigate risks
- Share knowledge and best practices



NSF Actions to Ensure the Integrity of Federally-Funded Research

- Creation of new NSF position, Chief of Research Security Strategy and Policy (CRSSP)
- Improved transparency/clarification for disclosure
- Changes to NSF Employment Requirements and mandatory science and security training for NSF employees
- Risk assessment and analysis through JASON independent advisory group
- Communication and awareness with the scientific community
- Coordination with USG interagency partners



NSF Collaboration with NSF's Office of Inspector General (OIG)

NSF:

- Formulate policy
- Review disclosures for capacity/duplication/overlap issues
- Refer concerns of waste, fraud and abuse to OIG
- Take administrative action when recommended by OIG
 - Actions include debarment, suspension, revocation of awards
- Work with institutional awardees on PI reassignments/other actions if needed

OIG:

- Investigate potential waste, fraud and abuse
- Work with Department of Justice on potential legal/civil infractions
- Recommend administrative actions to NSF



Talent Plan Contract - Sample Terms

- “...Upon completion of this 5-year initiation term, the research accomplishments in the chosen areas of emphasis...shall reach the highest levels in the nation, as codified in standard metrics associated with these disciplines. For instance, the total number and the quality of SCI papers in these two research areas shall rank in the top 5 among the same disciplines in the country [China]. The number of papers published in top-level journals including *Nature*, *Science*,...etc., shall be greater than 20, which is more than the number produced by Prof. xxxx [another prolific researcher] during the same time frame. Moreover, it is expected to match the number being published by the School of Chemistry and Chemical Engineering at [xxx rival Chinese university] over the same period.”

Note: This researcher is a full-time tenured professor at a prominent US university.



Talent Plan Contract - Sample Terms (cont'd)

- “Party B [researcher] will...hire at least one professor who has won recognition in the ‘National Outstanding Young Scientist Fund’ program or two professors that have or will receive ‘One Thousand Talent Program for Youth’ funding.”
- “To establish international joint laboratories...with leading professors, such as, but not limited to, Professor Eric xxx at the University of [US university] (xx Journal Associate Editor)...”
- “During the agreement period, the achievements made by Party B (researcher) under the terms of this contract in teaching and research, including published papers, books, awards, patents and research projects and Chinese-Sourced funding, shall indicate the joint affiliation between Party A (Chinese institution) and Party B (researcher).”

Note: This researcher is a full-time tenured professor at a prominent US university.



Talent Plan Contract - Sample Terms (cont'd)

- “Party B (researcher) will lead numbers of the [Chinese university] team to publish SCI papers no fewer than 50 (including more than 2 papers in *Science*, *Nature*, *Natural Materials* and *Nature Chemistry*). The numbers of JACS, Angew., Chemical Reviews, Chemical Soc. Rev., Accounts of Chemical Research shall not be less than 20. The first author and primary affiliation of these papers will be [xxx Chinese university].”
- “Party B (researcher) should lead the team to obtain overall research funding that equals or exceeds 10 million RMB (\$1.4M US) from outside of [xx Chinese university]”
- “Party B (researcher) will develop at least one lead compound that shows promise as a pre-clinical candidate and achieve a number of patents.”

Note: This researcher is a full-time tenured professor at a prominent US university.



Next Steps for NSF in Research Security

- Finalize Term and Condition on PUI
- Partner with OIG on incidents/cases
- Develop external training for the academic research community
- Leverage data and analytics to support research security
- Release the revised Term and Condition for International Collaborations on Major Facilities
- Work with JCORE to finalize institution/agency guidance
- Consult with the research community on the type of guidance and tools that might be helpful to put in place for NSF reviewers