



NATIONAL SCIENCE FOUNDATION
OFFICE OF INSPECTOR GENERAL
OFFICE OF INVESTIGATIONS

CLOSEOUT MEMORANDUM

Case Number: A03090049

Page 1 of 1

We learned from a university¹ that it was proceeding with a detailed investigation of one of its faculty members² who was the PI on two NSF awards,³ including one CAREER award. The allegation involved fabricated citations and the existence of two manuscripts in each of the proposals. The university made a finding of research misconduct citing an extensive pattern of misrepresentation in proposals to several Federal and private funding sources. We concurred with the university's finding and based on the attached report of investigation recommended that NSF: send a letter of reprimand containing a finding of research misconduct; debar the PI for a period of 2 years; and require the PI to submit certifications and assurances for 3 years after the debarment period. In the attached letter from the Deputy Director, NSF made a finding a research misconduct and required certifications and assurances for 3 years from the date of the finding.

Accordingly, this case is closed.

1

2

3

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230



OFFICE OF THE
DEPUTY DIRECTOR

JAN 31 2005

CERTIFIED MAIL --RETURN RECEIPT REQUESTED

Re: Notice of Misconduct in Science Determination

Dear

On or about July 27, 2001, you submitted a CAREER proposal to the National Science Foundation ("NSF") entitled

On January 25, 2002, you were listed as the Principal Investigator on another proposal submitted to NSF, entitled

As documented in the attached Investigative Report prepared by NSF's Office of Inspector General ("OIG"), in your biographical sketches accompanying these proposals, you characterized certain manuscripts that you authored as having been submitted to scientific journals when, in fact, they had not been so submitted.

Scientific Misconduct and Proposed Sanctions

Under NSF's regulations in effect at the time of the misconduct, "research misconduct" is defined as "fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from activities funded by NSF ..." 45 CFR § 689.1(a). A finding of research misconduct requires that:

- (1) There be a significant departure from accepted practices of the relevant research community; and
- (2) The research misconduct be committed intentionally, or knowingly, or recklessly; and
- (3) The allegation be proven by a preponderance of evidence.

45 CFR § 689.2(c).

In support of the two proposals that you submitted to NSF, you indicated that manuscripts that you co-authored were submitted to two separate scientific journals. In addition, in the CAREER proposal funded by NSF, you cited to another manuscript that was allegedly submitted, although the nature of this manuscript was not made clear. The OIG investigation confirms, however, that these manuscripts were, in fact, not submitted to scientific journals. Thus, your proposal contains fabricated information regarding the status of the manuscripts cited. I therefore conclude that your actions meet the definition of "research misconduct" set forth in NSF's regulations.

Pursuant to NSF regulations, the Foundation must also determine whether to make a *finding* of misconduct based on a preponderance of the evidence. 45 CFR § 689.2(c). After reviewing the Investigative Report and the University Committee Report, NSF has determined that, based on a preponderance of the evidence, your misconduct was knowing and constituted a significant departure from accepted practices of the relevant research community. I am, therefore, issuing a finding of research misconduct against you.

NSF's regulations establish three categories of actions (Group I, II, and III) that can be taken in response to a finding of misconduct. 45 CFR § 689.3(a). Group I actions include issuing a letter of reprimand; conditioning awards on prior approval of particular activities from NSF; requiring that an institution or individual obtain special prior approval of particular activities from NSF; and requiring that an institutional representative certify as to the accuracy of reports or certifications of compliance with particular requirements. 45 CFR § 689.3(a)(1). Group II actions include award suspension or restrictions on designated activities or expenditures; requiring special reviews of requests for funding; and requiring correction to the research record. 45 CFR § 689.3(a)(2). Group III actions include suspension or termination of awards; prohibitions on participation as NSF reviewers, advisors or consultants; and debarment or suspension from participation in NSF programs. 45 CFR § 689.3(a)(3).

In determining the severity of the sanction to impose for research misconduct, I have considered the seriousness of the misconduct; our determination that it was *knowing*; the determination that it was not an isolated event; your willingness to accept responsibility for your actions; and the contrition that you demonstrated during the course of the investigative process. I have also considered other relevant circumstances. 45 CFR § 689.3 (b).

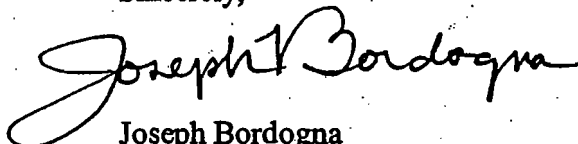
I find your misconduct to be inappropriate. There are, however, several mitigating factors that we considered. First, your conduct did not have a significant impact on the research record. Second, your misrepresentation of the status of your manuscripts likely was not a crucial factor in NSF's decision to grant your proposals. Lastly, you admitted your error and displayed contrition for your actions.

I, therefore, am requiring that, from the date of this letter until January 31, 2008, you certify that any documents submitted by you to NSF do not contain any fabricated or falsified information. In addition, for this same time period, an official from your employer must provide written assurance that any proposal submitted by you does not contain any falsified or fabricated information. Such certifications and assurances should be sent to the Office of Inspector General, 4201 Wilson Boulevard, Arlington, Virginia 22230.

Procedures Governing Appeals

Under NSF's regulations, you have 30 days after receipt of this letter to submit an appeal of this decision, in writing, to the Director of the Foundation. 45 CFR §689.10(a). Any appeal should be addressed to the Director at the National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230. If we do not receive a response to this notice within the 30-day period, this decision will become final. For your information we are attaching a copy of the applicable regulations. If you have any questions about the foregoing, please call Assistant General Counsel, at (703) 292-

Sincerely,

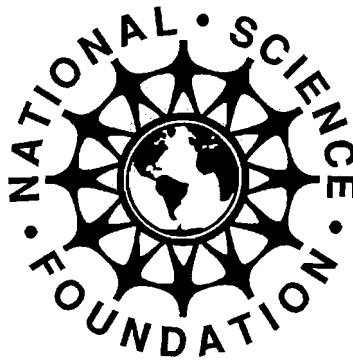
A handwritten signature in black ink, appearing to read "Joseph Bordogna". The signature is fluid and cursive, with the first name "Joseph" and last name "Bordogna" clearly distinguishable.

Joseph Bordogna
Deputy Director

Enclosures

- Investigative Report
- 45 C.F.R. 689

National Science Foundation Office of Inspector General



Confidential
Investigation Report
Case Number A03090049

30 September 2004

Summary

The Office of Inspector General (OIG) has concluded that the subject¹ fabricated the existence and status of manuscripts that he cited in two awarded National Science Foundation (NSF) proposals. After an investigation, the subject's university² (University1) made a finding of research misconduct under its policies and procedures.³ University1 found that the subject had "willfully misrepresented the publication status or existence of"⁴ two manuscripts in two awarded NSF proposals, one of which is an NSF CAREER proposal.⁵ University1 issued a letter of reprimand, and substituted a new PI on the CAREER award with the approval of NSF. University1's investigation also included allegations arising from an earlier investigation by University2,⁶ where an investigation resulted in the subject signing a settlement agreement with the Public Health Service (PHS) based on findings of plagiarism and falsification.⁷ We conclude that the subject committed research misconduct while submitting proposals to NSF and has demonstrated a pattern of misrepresenting data and his publication record. Thus, OIG recommends that NSF:

- send a letter of reprimand to the subject informing him that NSF has made a finding of research misconduct;
- debar the subject from receiving federal funds for a period of 2 years commencing with the finding of misconduct;
- require the subject to certify for 3 years after the debarment period that any documents submitted to NSF by the subject do not contain any falsified or fabricated information; and
- require the subject to submit assurances by a responsible official of the subject's employer for 3 years after the debarment period that proposals submitted by the subject to NSF do not contain any falsified or fabricated information.

¹ [REDACTED]
² [REDACTED] The subject resigned from the faculty [REDACTED], and accepted a new position [REDACTED], from which he resigned (Tab 22, page 3).

³ Tab 1, [REDACTED]

⁴ Tab 11, March 30, 2004, letter, page 1.

⁵ The two awards are the only two proposals that the subject submitted to NSF. They are: [REDACTED]

[REDACTED] (Tab 3).

⁶ [REDACTED]
⁷ Tab 15, "Voluntary Exclusion Agreement," page 1.

The University's Inquiry

In accord with NSF's Research Misconduct regulation,⁸ University1 notified OIG that it had convened an inquiry committee and found substance to warrant an investigation of allegations involving two active NSF awards. The subject allegedly committed misconduct by submitting proposals to NSF and five other funding sources with citations to non-existing manuscripts. University1 supplied OIG with a copy of its inquiry committee's reports and supporting documentation.⁹

OIG's review determined that the subject received two NSF awards in which the proposal biographical sketches each included two allegedly non-existent publications labeled as "submitted" to prominent journals.¹⁰ Within the project description of the NSF CAREER proposal, the subject also referenced a "submitted" manuscript, although it was unclear to what manuscript the subject was referring.¹¹ Each citation identified the subject as the first author and included his postdoctoral advisor at University2¹² as the only co-author. University1 provided us with copies of its inquiry committee's correspondence with the postdoctoral advisor, who stated: "Neither of the papers . . . was ever discussed with me, and I am unaware of any submission of either paper."¹³

The University1 inquiry committee report also included portions of proposals that the subject submitted to five other funding agencies¹⁴ containing references to a total of three different manuscripts¹⁵ co-authored by the postdoctoral advisor and listed as either "submitted" or "in preparation." The manuscript citations in the NSF proposals were among the three the

⁸ 45 C.F.R. § 689.4(b)(2).

⁹ University1's first inquiry report focused on the allegation it received from University2, which involved the misrepresentation of a figure in a proposal submitted by the subject to the Petroleum Research Fund (PRF): see Tab 4 (inquiry charge and report), Tab 5 (University2 investigation report including written statement by subject), and Tab 6 (proposal submitted by the subject to PRF).

While conducting the inquiry, University1 identified citations to allegedly fabricated manuscripts in proposals to NSF and other agencies, resulting in a second inquiry report: see Tab 7 (inquiry charge and report), Tab 8 (query to subject's postdoctoral advisor and response), and Tab 9 (excerpts from proposals submitted by subject while at University1 to PRF, the American Cancer Society, the Whitaker Foundation, the March of Dimes, and the Office of Naval Research (ONR)).

¹⁰

[REDACTED] See Tabs 2 and 3,

biographical sketches.

¹¹ Tab 2, project description, page 2.

¹²

[REDACTED]

¹³ Tab 8, page 1.

¹⁴ See note 9.

¹⁵ See Tab 7, August 3, 2003 letter. In addition to the two manuscripts cited in the NSF proposals, the inquiry committee considered a third manuscript: [REDACTED]

[REDACTED]. It is cited in two proposals to the American Cancer Society (Tab 9). Because the title of this manuscript differs from the title of the other JACS manuscript by a single word substitution, it is possible that these two manuscripts are the same.

inquiry committee questioned.¹⁶ These additional citations suggested a potential pattern of misconduct that further supported the need for an investigation with regard to the subject's submissions to NSF.

Thus, OIG determined there was substance to warrant an investigation, and OIG referred an investigation to University1,¹⁷ which it accepted. OIG deferred its investigation pending receipt of University1's report.¹⁸

The University's Investigation

University1 formed an ad hoc committee (the Committee) to investigate several allegations against the subject, including the citation of allegedly non-existent manuscripts in two awarded NSF proposals.¹⁹ University1 formally charged the Committee to address allegations that the subject:

inappropriately used, described, and attributed a micrograph in a proposal to the Petroleum Research Fund and that he has improperly stated the existence, publication status, and/or authorship of several papers listed in his biosketch and several proposals.^[20]

Although this charge encompasses allegations in addition to those in OIG's referral, all of the allegations investigated by the Committee ultimately bore on whether the subject's allegedly fabricated citations were part of a larger pattern.

OIG received the Committee's investigation report covering all of the allegations in its charge.²¹ OIG also received a letter from the Associate Vice President for Research Integrity (the AVP), specifically addressing the allegations pertaining to the NSF awards,²² and a copy of the subject's letter of resignation from the faculty of University1.²³

Allegations Directly Involving the NSF awards

With regard to the allegations directly involving NSF awards, University1 stated that the Committee found:

A preponderance of the evidence demonstrates that [the subject] willfully misrepresented the publication status or existence of the manuscripts. This misrepresentation was a serious deviation from accepted practice in the relevant research community, which is truthfully to report the status of publications that are mentioned in support of proposals. The investigating

¹⁶ Tab 7, Letter dated August 3, 2003.

¹⁷ Tab 10, OIG Investigation referral letter.

¹⁸ 45 C.F.R. § 689.6(a).

¹⁹ Tab 18.

²⁰ Tab 18, page 1.

²¹ Tab 14.

²² Tab 11.

²³ Tab 12.

committee does not believe that the misrepresentation will have a significant impact on the research record.^[24]

Furthermore, University1 found that the subject's actions were part of a larger pattern, noting that proposals submitted to other funding sources list the two manuscripts cited in the NSF proposals.²⁵

The Committee based its conclusions regarding the allegedly fabricated manuscripts and citations on statements made by the subject in an interview²⁶ and in writing. In his October 9, 2003, written statement, the subject stated:

You will notice that the status of papers was indicated as "in preparation" early on, and that after [my postdoctoral advisor] has filed a complaint against me I have removed them from my CV (in ONR and later proposals). In June 2001 I have written them for submission to the indicated journals. I have sent several emails to [my postdoctoral advisor] asking him questions regarding relevant science, and never received replies. I have also sent him by email the second [Petroleum Research Fund (PRF)] and my NSF-CAREER proposals. I did not sent [sic] the manuscripts out. I was confident that I would do so within a month or two after proposal submission, and I new [sic] that the papers are prepared and will be delivered on the promise. I especially wanted to stake them out given my lack of confidence in [my postdoctoral advisor] for acknowledging any of my work (e.g. I was sure that I will be scooped by his new postdoc, just as I was already scooped from part of my data during my work with him). In the end I could not overcome my aversion to sending the papers for review without some reply from [my postdoctoral advisor], especially given my uneasy feelings with regard to my relationship with him. I should have been more careful and indicated them both as "to be submitted". On the other hand, I always felt that the ensuing events have clearly made it impossible in this case. I must stress again that I have appended to this letter the data justifying the specific statements regarding my prior research mentioned in the text of the proposals. I was not basing my proposed work on false premises.^[27]

In his email response to the Committee's draft report, the subject again admitted to misstating the status of the manuscripts:

I categorically deny the charge that I have entirely invented any papers or data mentioned in my [University1] proposals. I have stated that I was careless in my statement in the proposal CVs that the papers were "submitted" I regret that the committee states that I have

²⁴ Tab 11, page 1.

²⁵ Tab 11, page 1.

²⁶ Tab 14, November 18, 2004, letter, page 1.

²⁷ Tab 16, October 9, 2003, statement, page 7.

inappropriately listed [my postdoctoral advisor] as collaborator in my CVs and proposals. I do point out that my doing so was never motivated by claiming a “fame” of someone else to cover my work. I honestly believed that, since the work was done in [my postdoctoral advisor’s] lab, I must include his name, even in a very informal circumstance of as yet unpublished work. I further point out that [my postdoctoral advisor] was aware of our work together. This is clear from his statements to the [University2] committee, and from the fact that he was furnished with the text of my PRF and (I believe) NSF proposals.

In conclusion, I fully realize and agree that I should have been (i) careful in how I state any of my prior work in proposals; and (ii) tried to resolve my general animosity with [my postdoctoral advisor], and communicate clearly with him regarding the exact status of the work I have done for him, and, most importantly, the validity of any data I have shown to him. My actions in the second charge against me were never driven by desire to deceive anyone. I have worked extremely hard, learned much, and did decent work while in [my postdoctoral advisor’s] lab. I am not ashamed of the work I have done there, but I should have paid attention to the exact way I referred to it in my proposals.^[28]

The Committee reported that the subject did not deny the allegations, “but claimed some excuses for such misrepresentation,” which the Committee characterized as excuses “personal in nature” and failing to “justify the actions involved.”²⁹ The Committee concluded that the subject had “improperly stated the existence, publication status, and/or authorship” of the two papers listed in the biographical sketches.³⁰ Furthermore, the Committee concluded that it is improper practice to include co-authored papers in a biographical sketch without first consulting the co-author.³¹

Pattern of Behavior in Allegations Concerning Non-NSF Proposals

In response to questions OIG raised in the investigation referral letter,³² the AVP specifically addressed the subject’s pattern of conduct in relation to the NSF awards. OIG notes that University1 charged the Committee to investigate allegations encompassing proposals submitted to multiple funding sources including but not limited to NSF. Therefore, the Committee addressed the proposals to other sources directly as allegations of misconduct rather than peripherally as evidence of a pattern of behavior in relation to the NSF proposals. The AVP wrote that the Committee identified several proposals submitted to other funding sources in which the subject listed the manuscripts that are the focus of the allegations and concluded that this indicated “a broader pattern” of misrepresentation.³³

²⁸ Tab 17, page 1.

²⁹ Tab 14, November 18, 2003, letter, page 1.

³⁰ Tab 14, November 18, 2003, letter, page 1.

³¹ Tab 14, November 18, 2003, letter, page 2.

³² Tab 10, page 5.

³³ Tab11, page 1.

The Subject's Response to the University's Investigation Report

The subject responded to University1's draft investigation report via email,³⁴ addressing two substantive issues: the micrograph in the PRF proposal and the manuscripts referenced in the proposals. The subject admitted the inappropriate use of the micrograph in the PRF proposal, taking "full responsibility" for the "regrettable and inappropriate" action.³⁵ He also addressed the Committee's reference to "excuses" and asserted that his statements were intended "to provide the fullest possible description of the relevant events."³⁶

With regard to the manuscript citations appearing in the NSF proposals, the subject denied that he "entirely invented any papers or data mentioned" in his proposals. He wrote that he "was careless" in stating the manuscripts were submitted, explained his strained relationship with his postdoctoral advisor, and indicated that he would seek help in properly citing unpublished work in the future.³⁷

The University's Action Against The Subject

The Provost accepted the Committee's report and concluded that the subject had "engaged in research misconduct, as defined in [University1's] policy and as widely understood in the scientific profession."³⁸

University1 issued a letter of reprimand to the subject³⁹ and requested that NSF approve a change in PI wherein the subject would become the Co-PI of his own CAREER award. NSF approved the change in PI.⁴⁰ University1 did not request a change in PI for the other award, which expired after a no-cost extension on May 31, 2004.⁴¹ The subject resigned from the faculty of University1 effective June 30, 2004.⁴² The NSF program officer informed OIG that NSF terminated the CAREER award in conjunction with the subject's resignation.

³⁴ Tab 17.

³⁵ Tab 17, page 1.

³⁶ Tab 17, page 1.

³⁷ Tab 17, pages 1-2.

³⁸ Tab 13.

³⁹ Tab 13.

⁴⁰ NSF notified University1 by phone that the change had been approved. The conversation is documented in the award jacket as a notation in the margin of an email.

⁴¹ This was an award for the purchase of instrumentation with several Co-PIs listed. The final project report for this award was submitted through FastLane on June 30, 2004, and was approved by NSF. Thus, it was not necessary to request that University1 appoint a substitute PI.

⁴² Tab 12.

OIG's Assessment

NSF's Research Misconduct regulation was revised effective April 17, 2002. The allegations in this case involve activity that took place prior to April 17, 2002. For that reason, OIG, in agreement with NSF, applies the definition of research misconduct in effect at that time, which defined misconduct as:

Fabrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from activities funded by NSF^[43]

For all other purposes, the current version of the Research Misconduct regulation is applicable.

OIG concludes that University1 followed reasonable procedures and produced an accurate and complete body of evidence addressing the allegations that OIG referred regarding the citation of non-existent manuscripts in NSF proposals. OIG finds that University1's evidentiary record, final report, and the AVP's cover letter addressing the issues specified within the referral letter adequately and fully address the allegations in the referral. The factual information contained within those documents adequately supports University1's conclusions by a preponderance of the evidence. Therefore, OIG accepts University1's investigation report⁴⁴ in lieu of conducting its own investigation, and addresses the rationale for recommending a finding of research misconduct below.

A finding of misconduct requires that (1) there be a significant departure from accepted practices of the relevant research community, (2) the research misconduct be committed intentionally, or knowingly, or recklessly, and (3) the allegation be proven by a preponderance of the evidence.⁴⁵

The Act

With regard to the awarded NSF proposals, the subject allegedly fabricated the existence and/or publication status of two manuscripts listed in his biographical sketches as well as cited an allegedly fabricated manuscript directly in the text of his awarded CAREER proposal. His biographical sketches identified one manuscript as "submitted to *Science*" and the other as "submitted to the *Journal of the American Chemical Society*." In the CAREER proposal text, the subject also wrote:

Polydisperse PBLGs, prepared by conventional polymerization methods, were known for over 40 years, and have been found to only form nematic and cholesteric LC phases⁷. Thus, the exact control of the DP resulted in observation of a distinct type of molecular self-assembly, both in the bulk, and in thin films and on solid substrates ([the subject], [his postdoctoral advisor], submitted). Another example is the biosynthesis of β -sheet

⁴³ 45 C.F.R. § 689.1 (revised October 1, 2001).

⁴⁴ Tabs 11 through 18.

⁴⁵ 45 C.F.R. § 689.2(c).

polycrystalline materials, comprised of lamellar stacks of β -sheets shown in Figure 1b^{8,9}. Hence, precise control^[46]

It is notable that the subject embedded a parenthetical citation, in contrast to the endnote format used throughout the rest of his proposal.⁴⁷ In each of the citations to “submitted” manuscripts, the subject listed himself as the first author with his former postdoctoral advisor listed as the only co-author.

OIG notes that the two allegedly-falsified manuscripts listed on the biographical sketches are found under the heading “Five most closely related to the proposed research,” and that these are the only publications in which the subject’s postdoctoral advisor is identified as a co-author.⁴⁸ The subject listed the two “submitted” manuscripts as part of the ten allowed, but the biographical sketch indicated that those listed were out of twenty total publications that the subject has authored.⁴⁹ All eight of the others cited were publications with more than two authors including the subject’s dissertation advisor, only a few of which appeared in prominent journals. The subject claimed to have “submitted” the manuscripts to two prominent, upper-echelon journals with widespread readership in chemistry and the general scientific community. Publication in these journals is a prestigious accomplishment, and the submission of manuscripts bearing an established co-author’s name implies a high level of integrity and quality to the research, as well as suggesting likely acceptance by the journals.

University1’s inquiry report contains copies of email correspondence between University1 and the former postdoctoral advisor regarding the existence of the manuscripts. The postdoctoral advisor stated: “Neither of the papers . . . was ever discussed with me, and I am unaware of any submission of either paper.”⁵⁰ University1 also reported that the Committee requested from the subject copies of documentation or other evidence to show that he had discussed the manuscripts with his former advisor or letters acknowledging submission of the manuscripts to the journals.⁵¹ The subject provided some documentation directed at showing that he had not fabricated the data upon which he based the proposed work, including two figures he asserted were from the manuscripts,⁵² but did not produce manuscripts in draft form of any kind.

OIG believes that the subject’s failure to produce copies of the manuscript drafts is indicative of the fact that the manuscripts never existed. Although University1 did not resolve the existence of the manuscripts,⁵³ OIG believes that it is highly unlikely that the subject would

⁴⁶ Tab 2, project description, page 2.

⁴⁷ In this textual citation, the subject did not identify to which journal he had “submitted” this manuscript; therefore, it is unclear if he intended the citation to refer to one of the “submitted” manuscripts in the biographical sketches or to a third manuscript.

⁴⁸ Tabs 2 and 3, biographical sketches.

⁴⁹ NSF Grant Proposal Guide (June 2001 and January 2002) II.C.5.

⁵⁰ Tab 8, page 1.

⁵¹ Tab 14, November 18, 2003, letter, page 1.

⁵² Tab 16, October 9, 2003 statement, pages 10 and Figures 1 and 2.

⁵³ University1 did not resolve the issue of whether the manuscripts existed, but concluded that the subject “willfully misrepresented the publication status or existence of the manuscripts.” See Tab 11, page 1.

produce only three figures⁵⁴ “justifying [his] specific statements regarding [his] prior research mentioned in the text of the proposals.”⁵⁵ Had the manuscripts existed in a form “a month or two” away from submission, as suggested by the subject,⁵⁶ he likely would have produced them for the Committee in addition to the data he supplied. His statement indicates that two of the figures “are exactly the same as in the relevant work from [University2] around mid-summer 2001.”⁵⁷ Furthermore, the subject stated that he “spent considerable time, money and effort attempting to prepare [his] work from [University2] for publication throughout the first half a year or so at [University1]”⁵⁸ and stated “[i]n June 2001 I have written them for submission to the indicated journals.”⁵⁹ The subject was aware that University1 questioned the existence of the manuscripts as indicated by his statement “I categorically deny the charge that I have entirely invented any papers or data.”⁶⁰ If this were true, then supplying the draft manuscripts instead of isolated figures to the Committee would have been the subject’s best evidence against the allegations of fabricated manuscripts and citations. Given the subject’s failure to provide these manuscripts in response to University1’s request, OIG concludes that the subject did not offer the “submitted” manuscripts as evidence because they do not exist.

OIG agrees with University1 that the subject’s actions are a “serious deviation from accepted practice in the relevant research community.”⁶¹ NSF requires that investigators supply biographical information for senior personnel as part of the proposal submission process.⁶² With regard to unpublished manuscripts, NSF explicitly instructs investigators to “list only those submitted or accepted for publication (along with the most likely date of publication).”⁶³ This establishes a reasonable, but firm, demarcation between substantially completed research and incomplete activities, without penalizing the investigator for the sometimes lengthy peer-review process.

Also, evidence suggests that by identifying his former advisor as a co-author on manuscripts “submitted” to the journals, the subject may have influenced the review panel to rank the CAREER proposal higher than it might otherwise have.⁶⁴ One reviewer commented on the subject’s “excellent record of publications.”⁶⁵ With regard to “overly ambitious” aspects of the proposed work, another reviewer wrote “the principal investigator will be assisted greatly by his excellent multidisciplinary training and there is no doubt that if the proposal is funded it will lead to outstanding scientific results and publications.”⁶⁶ The only writings from his postdoctoral

⁵⁴ Tab 16, October 9, 2003 statement, Figures 1, 2, and 3.

⁵⁵ Tab 16, October 9, 2003 statement, pages 7.

⁵⁶ Tab 16, October 9, 2003 statement, page 7.

⁵⁷ Tab 16, October 9, 2003 statement, page 10.

⁵⁸ Tab 16, October 9, 2003 statement, pages 2 and 3.

⁵⁹ Tab 16, October 9, 2003 statement, page 7.

⁶⁰ Tab 17, page 1.

⁶¹ Tab 11, page 1.

⁶² NSF Grant Proposal Guide.

⁶³ NSF Grant Proposal Guide (GPG) (June 2001) II.C.5.c and similarly for GPG January 2002.

⁶⁴ Tab 19. In fact, the proposal ranked first of nineteen proposals, eleven of which were awarded. OIG’s understanding of the review process for CAREER proposals is that those ranked highly by the panel are guaranteed funding, while those ranked lower require further program officer consideration to ensure that other program objectives are fulfilled.

⁶⁵ Tab 19, page 1 of 1, CAREER proposal reviews.

⁶⁶ Tab 19, page 2 of 3, CAREER proposal reviews.

work listed in the proposal were the two “submitted” manuscripts and the vague citation embedded in the text.⁶⁷ In fact, the subject co-authored no publications with his former postdoctoral advisor, although the research proposed in the CAREER proposal built on his work in his postdoctoral advisor’s laboratory.⁶⁸ The only other publications the subject listed were out of his dissertation advisor’s laboratory.⁶⁹ When asked how the absence of publications from a postdoctoral appointment in a panelist’s evaluation of a CAREER proposal and NSF’s approval of the award, the program officer told OIG that not having any publications would suggest unusual circumstances.⁷⁰

By citing manuscripts as “submitted” when in fact they apparently did not exist, the subject has abused NSF’s accepted practice for recognizing substantially completed work. Generally accepted practice within the scientific community allows authors to cite unpublished work at different stages in the research process. These conventions allow for data and conclusions to be disseminated prior to its vetting through the peer-review process while providing the reader with a relative benchmark for reliance on the material. For instance, initial data or preliminary findings are often cited in the literature as “preliminary data” or “unpublished.” Manuscripts in progress may be cited “in preparation;” those submitted but not accepted are appropriately identified as “submitted.” Once the manuscript is accepted by the journal, the author may then cite it as “in press,” and when it is published may be cite it by its formal and complete citation. The subject’s false citation of non-existent manuscripts representing the results of his postdoctoral research is a serious deviation from accepted practice as well as a significant departure from accepted practice.

Intent

The Committee report does not address the question of intent explicitly, however, University1 found that the subject acted “willfully.”⁷¹ The subject’s written statements as quoted above support this conclusion.

With respect to all of the proposals under investigation by the Committee, the subject wrote that he expected to send the manuscripts out “a month or two” *after* submitting the proposals.⁷² This statement supports the conclusion that the subject’s actions were, at a minimum, a knowing act. The subject submitted seven proposals,⁷³ including the two NSF proposals, in which he listed one or both of the manuscripts as “submitted” over a ten-month period. The only indication that the subject made any effort to correct the status of the manuscripts was the subject’s statement that, *after a complaint was made*, he “removed them from [his] CV (in ONR and later proposals).”⁷⁴

⁶⁷ Tab 2, project description, page 2.

⁶⁸ Tab 16, October 9, 2003 statement, page 7.

⁶⁹ Tabs 2 and 3, biographical sketches.

⁷⁰ Tab 21, Memorandum of Investigation.

⁷¹ Tab 11, page 1.

⁷² Tab 16, October 9, 2003 statement, page 7.

⁷³ Tab 9, except PRF proposal dated June 21, 2001.

⁷⁴ The ONR proposal is dated October 24, 2002, with the subject’s signature. It is the most recent of the proposals reviewed in the University1 investigation.

In his response to the Committee's report, the subject stated he was "careless" in listing the manuscripts as submitted. But in addressing his being "careless," he focuses his assertions on the premise that the *data* were not fabricated and that he had collaborated with his former advisor while collecting the data at University2. He failed to address the substance of the allegation that he misrepresented the publication status and existence of the *manuscripts*.

The subject's written response to University1's investigation report raises another important concern regarding his state of mind. The subject wrote that citing the manuscripts was intended to secure some credit for the results he obtained as a postdoc, "to stake them out given my lack of confidence in [my postdoctoral advisor] for acknowledging any of my work" at University2.⁷⁵ As mentioned above, the subject devoted a large portion of his written statements to characterizing his "general animosity" toward his former advisor.⁷⁶ Yet, in both his biographical sketches and in the text of the project description, the subject identified the non-existent manuscripts as "submitted" with his postdoctoral advisor listed as a co-author. OIG believes that it is more likely than not that the subject intended citing the manuscripts as "submitted" as a means of claiming not only his postdoctoral work (*i.e.*, the data) but also his association with his former advisor.⁷⁷ By citing a non-existent manuscript in the text of the proposal—the only such textual citation in the proposal—the subject drew the readers' attention specifically to his association with his prominent postdoctoral advisor. In fact, he had not published, submitted, or written anything from his work with his postdoctoral advisor.

Thus, OIG concurs with University1's conclusion that the subject "willfully misrepresented" the manuscripts by citing the manuscripts as submitted.⁷⁸ Because the subject did not produce actual drafts of the manuscripts, OIG further concludes that the subject knowingly misrepresented to NSF the existence as well as the publication status of the manuscripts.

Standard of Proof

University1 concluded by a preponderance of the evidence that the subject "willfully misrepresented that publication status or existence of the manuscripts."⁷⁹ OIG concurs with University1's assessment. Because the preponderance of the evidence shows that the subject knowingly falsified the publication status and existence of manuscripts cited in his two awarded NSF proposals, OIG concludes that the subject fabricated and falsified information in his awarded proposals. Therefore, OIG concludes that a preponderance of the evidence supports the conclusion that the subject committed research misconduct.

⁷⁵ Tab 16, October 9, 2003 statement, page 7.

⁷⁶ Tab 16, October 9, 2003 statement, page 7.

⁷⁷ See Tab 17, page 1.

⁷⁸ Tab11, page 1.

⁷⁹ Tab11, page 1.

OIG's Recommended Disposition

When deciding what appropriate action to take upon a finding of research misconduct, NSF should consider:

(1) How serious the misconduct was; (2) The degree to which the misconduct was knowing, intentional, or reckless; (3) Whether it was an isolated event or part of a pattern; (4) Whether it had a significant impact on the research record, research subjects, other researchers, institutions or the public welfare; and (5) Other relevant circumstances.^[80]

Seriousness

OIG believes that the severity of the subject's actions is elevated because his misconduct involves a CAREER award. CAREER awards are "the National Science Foundation's most prestigious awards for new faculty members."⁸¹ In FY2002, the subject's award totaled \$400,000 for five years,⁸² whereas the minimum award for FY2002 was \$300,000.⁸³ NSF review panelists evaluated the CAREER proposals based on intellectual merit and broader impacts. The reviewers for the subject's CAREER award considered the subject's training and publication record not only in assessing the proposal but also in ranking it first out of nineteen, thereby assuring its funding.⁸⁴ That assessment relied, at least in part, on the biographical information submitted with the proposal that showed actual publications from his graduate work as well as non-existent manuscripts based on his postdoctoral work.

Degree of Intent

OIG concludes that the subject's actions were done knowingly. In written statements to the Committee, the subject admitted he listed the manuscripts as "submitted," at least in part, to secure credit for research done and to prevent being "scooped" again.⁸⁵ The subject stated he intended to submit the manuscripts, which he asserted were complete, within "one or two months" of the proposals' submissions.⁸⁶ In fact, the evidence indicates that the manuscripts do not exist at all; the subject produced for the Committee only a few figures as evidence that the *data* had not been fabricated. The subject submitted proposals citing the non-existent manuscripts to four funding sources over the course of approximately ten months. The evidence contradicts his asserted intention to submit the manuscripts "within a month or two" after submitting the proposals.⁸⁷

⁸⁰ 45 C.F.R. § 689.3(b).

⁸¹ Program Solicitation, NSF 01-84.

⁸² The subject originally requested \$485,514.

⁸³ Program Solicitation, NSF 01-84.

⁸⁴ Tab 20.

⁸⁵ Tab 16, October 9, 2003 statement, page 7.

⁸⁶ Tab 16, October 9, 2003 statement, page 7.

⁸⁷ Tab 16, October 9, 2003 statement, page 7.

Pattern of Behavior

According to University1's investigation report, the subject submitted seven proposals to four different funding sources, including the two to NSF, over approximately ten months during which he characterized the non-existent manuscripts as "submitted." Those submissions occurred between March 2001 and January 2002. Although the subject has expressed his intention to have the manuscripts submitted within "a month or two" of listing the manuscripts as "submitted" on the proposals,⁸⁸ the subject continued to submit proposals over the course of approximately ten months to multiple funding sources and did not correct any citations until after an allegation was made.

University1 also found that the subject had "misrepresented" a micrograph in a PRF proposal.⁸⁹ The micrograph was also the focus of the University2 investigation. The subject initially presented the figure, a "fudged image,"⁹⁰ to his postdoctoral advisor during a group meeting at University2. His postdoctoral advisor ultimately relied on this image, incorporated it into an NSF proposal,⁹¹ and later learned from another postdoctoral fellow that an identical image had been found in a central database.⁹² When confronted by his postdoctoral advisor, the subject initially denied that he had taken the image from the database. However, the postdoctoral advisor received the subject's PRF proposal containing the fabricated figure identified as yet a different material. Only after his postdoctoral advisor inquired again about the veracity of the figure⁹³ and discussed the situation with the subject's dissertation advisor, the subject admitted:

that the final image presented on [sic] the group meeting, has had no trace whatsoever left of the original AFM data – I believe that in the process of generating a set of images from "cut and pasted" STM image, I have lost track of what is original . . . and have eventually chosen something that looked best . . . with perhaps somewhat altered contrast, brightness, and gray levels . . . seeing the final image that I was putting on the transparency for the group meeting, it was apparent enough to me that the image was misleading, misrepresented, and clearly unrepresentable. But, I have failed to stop myself from proceeding, and have went [sic] on to present what amounted to a blatant lie.^[94]

The subject made similar statements in the University1 investigation regarding the "fudged image,"⁹⁵ and "highly processed scientific data with no real scientific meaning."⁹⁶

⁸⁸ Tab 16, October 9, 2003 statement, page 7.

⁸⁹ Tab 14, November 18, 2003 letter, page 1.

⁹⁰ Tab 16, October 9, 2003, statement, page 2.

⁹¹ Tab 5.

⁹² Tab 5, University2 Investigation Report, page 3.

⁹³ Tab 5, University2 Investigation Report, page 3.

⁹⁴ Tab 5, University2 Investigation Report, Appendix 1, page 2.

⁹⁵ Tab 16, October 9, 2003 statement, page 2.

⁹⁶ Tab 16, October 9, 2003 statement, page 2.

University2's investigation resulted in a settlement agreement between the subject and the PHS.⁹⁷ With respect to PHS funding, the subject agreed, for a period of three years, to a supervisory plan, certifications, and exclusion from serving in an advisory capacity. The agreement was signed in 2003, after the subject had submitted the CAREER and instrumentation proposals to NSF.

The subject's rationale for the "highly processed" image centers on his desire to garner his postdoctoral advisor's attention.⁹⁸ In his written statements, the subject repeatedly addresses the difficult circumstances in the lab at University2, including his feeling "rather forgotten and isolated" by his postdoctoral advisor who had assigned another postdoctoral fellow a parallel project.⁹⁹ The subject wrote to University2: "if I could just show one piece of 'promising' data on a group meeting, my supervisor . . . would 'let' me to continue working on the problem and produce real data."¹⁰⁰ The fabrication appeared to achieve the desired effect because the subject stated that his postdoctoral advisor "really 'liked' the image."¹⁰¹ The subject did not disclose the "blatant lie" when asked directly by his postdoctoral advisor. Rather, he admitted the misrepresentation after the postdoctoral advisor had made additional inquiries¹⁰² and after the subject became aware that the figure had been used in an NSF proposal.¹⁰³ OIG believes that the subject knowingly fabricated the figure to garner favor with his postdoctoral advisor and did so as part of a larger pattern of misrepresenting the status of his work.

Impact on the Research Record

This case does not involve an impact on the published research record.

Recommendations

The subject's resignation limits University1's actions regarding this matter. Action by NSF is necessary to protect the Federal government's interests. In light of the subject's pattern of research misconduct, OIG recommends that NSF take action to protect the Federal interest.

For these reasons OIG recommends that NSF:

- send a letter of reprimand to the subject informing him that NSF has made a finding of research misconduct;
- debar the subject from receiving federal funds for a period of 2 years commencing with the finding of misconduct;

⁹⁷ Tab 15.

⁹⁸ Tab 5, University2 Investigation Report, Appendix 1, page 2.

⁹⁹ Tab 16, October 9, 2003 statement, page 2.

¹⁰⁰ Tab 5, University2 Investigation Report, Appendix 1, page 2.

¹⁰¹ Tab 16, October 9, 2003 statement, page 3.

¹⁰² Tab 5, University2 Investigation Report, page 7.

¹⁰³ Tab 5, University2 Investigation Report, Appendix 2, page 1.

- require the subject to certify for 3 years after the debarment period that any documents submitted to NSF by the subject do not contain any falsified or fabricated information; and
- require the subject to submit assurances by a responsible official of the subject's employer for 3 years after the debarment period that proposals submitted by the subject to NSF do not contain any falsified or fabricated information.

The Subject's Response to OIG's Draft Investigation Report

The subject responded to OIG's Draft Investigation Report with minor comments or corrections.^{104,105} He noted that NSF awarded \$400,000 for the CAREER award and not the \$485,514 requested in the proposal. This report incorporates this information.

¹⁰⁴ Tab 22.

¹⁰⁵ In the Draft Investigation Report sent to the subject for comment, OIG recommended that NSF notify the Department of Energy (DOE) of NSF's finding of research misconduct concerning the subject, because the subject was then employed by [REDACTED]. The subject indicated in his response to the draft that he has resigned his position at Sandia. Tab 22, page 3.