Closeout for M96090030

In May 1996, the subject,[1] president of a small business and PI of a Small Business Innovation Research (SBIR) proposal,[2] was alleged to have plagiarized material from a published paper into his declined NSF SBIR proposal. We concluded that the subject had plagiarized ideas, text, formulas, figures, and references from three published papers.

OIG's investigation report and NSF's Deputy Director's letter reflecting his decision constitute the closeout for this case.

cc: Integrity, IG

[1] (footnote redacted).
[2] (footnote redacted).

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

OFFICE OF THE
DEPUTY DIRECTOR

February 9, 1999

CERTIFIED MAIL --RETURN RECEIPT REQUESTED

Re: Notice of Misconduct in Science Determination

Dear Dr.

In submitted a Small Business Research Innovation (SBIR) research proposal to the in the at the National Science Foundation for a project entitled ." As the President of and the named Principal Investigator on the grant, you were responsible for the preparation of the proposal. As documented in the attached Investigative Report prepared by NSF's Office of Inspector General (OIG), your proposal plagiarized text from three published papers.[1]

The OIG sent you a copy of their investigative report in April, 1998 and apprised you that you could submit comments on the report directly to the Foundation's Deputy Director by May 4, 1998. You did not submit any comments to the Foundation on the OIG report.

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Scientific Misconduct and Proposed Sanctions

Under NSF's regulations, "misconduct" is defined to include "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).

Your proposal contains verbatim plagiarism of text and figures from three published papers. Although you reference two of these papers in your proposal, the references do not adequately apprise the reader of your extensive reliance on these papers. In key places, you failed to provide proper attribution or clearly distinguish the copied text from your own. Your submission of a proposal to NSF that extensively copies the ideas or words of others without adequate attribution, as described in the Investigation Report, constitutes plagiarism as well as a serious deviation from accepted practices within the scientific community. I therefore conclude that you committed misconduct in science under NSF's regulations.

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 §689.2(a). Group I actions include issuing a letter of reprimand conditioning awards on prior approval of particular activities from NSF; and requiring certifications on the accuracy of reports or assurances of compliance with particular requirements. 45 CFR §689.2(a)(1). Group II actions include restrictions on designated activities or expenditures; and special reviews of requests for funding. 45 CFR § 689.2(a)(2). Group III actions include suspension or termination of awards; debarment or suspension from participation in NSF programs; and prohibitions on participation as NSF reviewers, advisors or consultants. 45 CFR § 689.2(a)(3).

In deciding what response is appropriate, NSF has considered the seriousness of the misconduct, whether it was deliberate or careless; whether it was an isolated event or part of a pattern; and whether the misconduct affects only certain funding requests or has implications for any application for funding involving the subject of the misconduct finding. See 45 C.F.R. §689.2(b).

I, therefore, take the following action:

- If you or your company submit any document associated with proposing, carrying out or reporting research to NSF before November 30, 2001, you must simultaneously submit a copy of the document along with a separate written certification that you reviewed NSF's Misconduct in Science Regulation (45 C.F.R. Part 689) and that the document contains no plagiarized material, to the Associate Inspector General for Scientific Integrity, 4201 Wilson Boulevard, Arlington, Virginia, 22230.

- You are excluded from serving as an NSF peer reviewer, adviser or panelist until November 30, 2001.

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 §689.9(a). Any appeal should be addressed to the Director at the National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230. For your information we are attaching a copy of the applicable regulations. If you have an questions about the foregoing, please call Lawrence Rudolph, General Counsel, at (703) 306-1060.

Sincerely,

Joseph Bordogna
Acting Deputy Director

Enclosures

CONFIDENTIAL

NSF OIG INVESTIGATION REPORT

April 3, 1998

OIG Case Number M96090030

REPORT OF INVESTIGATION INTO AN ALLEGATION OF MISCONDUCT IN SCIENCE

SUMMARY

The Office of Inspector General (OIG) has concluded that the subject,[1] president of a small business,[2] plagiarized from three published papers into his proposal[3] that he submitted to the National Science Foundation's (NSF's) Small Business Innovation Research (SBIR) program. Comparison of the subject's proposal and the three published papers shows extensive, verbatim plagiarism of text, a figure, references, and formulas from one paper; verbatim plagiarism of text from the second paper; and a figure from the third paper. The evidence demonstrates the subject was solely responsible for the preparation and submission of the proposal and is therefore solely responsible for the plagiarism therein.

We recommend that NSF find that the subject committed misconduct in science and take the following actions as a final disposition in this case. First, NSF should send a letter of reprimand to the subject informing him that NSF has made a finding of misconduct in science against him. Second, for 3 years from the final disposition of this case, NSF should require the subject to submit a certification to OIG, signed by himself and countersigned by the PI of any federally sponsored research the subject works on, that any documents the subject prepares in connection with that project contain no plagiarism, i.e., the documents are either entirely the work of the subject and his co-authors, or they distinguish[4] others' work and contain the appropriate references. Third, NSF should exclude the subject from participating as an NSF reviewer, advisor, or consultant for 3 years from the final disposition of this case. Finally, we suggest that NSF consider whether the subject has been convicted of a crime that would warrant a debarment when making its decision.

BACKGROUND

Within a 5-week period, the subject submitted seven proposals[5] to NSF's SBIR program through the small business of which he was president. The subject's proposals were submitted as Phase I SBIR proposals. A Phase I proposal is "a six-month effort to determine the scientific, technical and commercial merit and feasibility of the proposed concept or idea . . . ."[6] We learned that one of the

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[1] (footnote redacted).

[2] (footnote redacted).

[3] (footnote redacted).

[4] We use the word distinguish to indicate a method, such as font, indentation, or quotation marks, that is used to differentiate copied material and original material in a document.

[5] (footnote redacted).

[6] NSF's *Grant Proposal Guide* (NSF 95-27), pg. 18.

subject's proposals (see footnote 3; Tab 1) allegedly contained material that was plagiarized from the source paper (Tab 2) that had been previously published on that research topic.[7] It was also alleged that the subject's proposal was based on the same basic research ideas put forth in the source paper and relied significantly on the theory and application of that theory described in the source paper. Our comparison of the subject's proposal to the source and background papers shows that the subject's proposal contained approximately 91 lines of text, 6 references, 5 formulas, and 1 figure that were identical to the source paper.

As part of the subject's Phase I proposal, he proposed a feasibility study of an instrument he planned to construct. The source paper described signals to be detected and proposed an instrument to measure them. During our inquiry, we determined that the subject's proposal also contained approximately 27 lines of verbatim text from a second paper—the background paper (Tab 3).[8]

We made several unsuccessful attempts to obtain an explanation from the subject for the similarity of his proposal to the published papers. We sent the subject what turned out to be the first of three letters[9] (see Tab 4) requesting the subject's input. After several months elapsed without a response from the subject, we attempted to speak with the subject by telephone.[10] When an OIG staff scientist identified himself to the subject, the subject hung up the telephone. The OIG scientist immediately called the subject back, reached an answering machine, and left a message for the subject to call OIG. We did not receive a response from the subject and then sent him a second letter requesting his explanation.[11] After the second letter, we received the subject's only response. He left a voice mail message[12] saying he had received our (two) letters, but he not been able to respond because he had foot surgery. Furthermore, the subject said he would not be able to respond to our request for information for an additional 3 months—the amount of time he said was required for his recovery. We sent the subject a third letter[13] indicating that, without further explanation, we didn't find it credible that foot surgery would prevent him from responding to our requests for information. We also told him that unless we received a response to the questions asked in our first letter, we would proceed without benefit of his input and, based on the information we had, we would recommend to NSF that he be found to have committed misconduct in science. We note that 7 months have passed since his request that we wait 3 months for him to respond, and we have received no indication from the subject that he is now ready to cooperate.

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[7] (footnote redacted).

[8] (footnote redacted).

[9] The first letter from OIG to the subject was sent April 4, 1997; we requested his response to that letter by April 21, 1997. All letters were sent via Federal Express (Tab 4).

[10] An OIG staff scientist called the subject on May 30, 1997.

[11] The second letter was sent June 2, 1997, and we requested his response by June 13, 1997.

[12] The subject called at 5:20 p.m. on June 6, 1997.

[13] The third letter was sent June 27, 1997. In that letter, we informed the subject that unless we received his response by July 11, 1997, we would proceed without his input.

After the subject did not respond to our requests for his input, we asked a Program Director,[14] who is an expert in the proposal's field of science, to compare the source paper and the proposal to evaluate the significance and seriousness of the overlap between the two documents. In addition to his evaluation, he noticed figure 4 in the proposal was an unattributed reproduction of figure 7 from a third paper (Tab 5).[15] His memorandum is provided in Tab 6.

EXTENT OF THE PLAGIARISM

For ease of comparison, the material that appears verbatim in the source paper (Tab 2), the background paper (Tab 3), and the subject's proposal (Tab 1) is highlighted in yellow in the tabbed documents. The unattributed figure that appears in the subject's proposal and the third paper (Tab 5) is highlighted in orange in the tabbed documents.

THE SOURCE PAPER

Comparison of the subject's proposal and the source paper shows copied material from the source paper comprises approximately:

- 3.5 lines of verbatim text from the "Introduction" section into the "*The Physics of Tornadoes*" section of his proposal;
- 23 lines of verbatim text and 1 reference, in addition to xerographically reproducing one figure, from the "Background" section into the "Technical Background, *The Physics of Tornadoes*" section of his proposal;
- 52 lines of verbatim text, 5 formulas, and 4 references from the "Tornado seismic signal (TSS) characteristics" section into the "Technical Background, *Tornadic Seismic Waves and Spectral Properties*" of his proposal; and
- 9 lines of verbatim text from the "Possible existence of TSS measurements" section and 4 lines of verbatim text plus 1 reference from the "Seismic tornado detector (STD) into the "Phase I Technical Objectives" section of his proposal.

What made this verbatim use of material from the source paper more serious was the fact that it incorporated some of the intellectual ideas presented in the source paper. The proposal contained the basic ideas and formulas in the paper to create a proposal for essentially the same concept described in the source paper. The proposal duplicated almost all of the text that justified why the proposed idea and instrument should work. In the "Technical Objectives" section of his proposal, the proposal included unattributed information from the source paper that was related to the design of the proposed instrument, e.g., a basic description of the device along with some proposed operating parameters.

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[14] (footnote redacted).

[15] (footnote redacted).

The Program Director noted "the most verbatim overlap between the proposal and the [source paper] occurs in Section III, 'Technical Background'. This is the section where the scientific and technical justification is provided for using [this specific] approach to the . . . problem. In [his] opinion, the proposal does make use of the intellectual ideas presented in the [source paper] . . . ." He found two major aspects in that section to be significant. One aspect was "[f]igure 3 of the proposal appears to be a direct copy of [the source paper's] figure 1. This figure and the accompanying discussion in Section III.1 embodies the physical definition of the problem that must be solved in order to develop [the proposed instrument]."[16] The second aspect was the "substantial overlap in Section III.2, . . . [i]n [which] the mathematical basis for [the physical principle upon which the proposed instrument operates] is derived."[17]

THE BACKGROUND AND THIRD PAPERS

OIG's comparison of the subject's proposal with the background paper showed that the subject had also copied from it. The subject copied from the background paper approximately:

- 19 lines of verbatim text from the "*Radar Horizon Problems*" section into the "*Doppler Radar: Advantages, Limitations, and Shortcomings*, The Radar Horizon Problem" section of his proposal; and
- 8 lines of verbatim text from the "*Aspect Ratio Problems*" section into the "*Doppler Radar: Advantages, Limitations, and Shortcomings*, Aspect Ratio Problems" of his proposal.

As noted earlier, the Program Director also noticed that the subject had copied into his proposal without any attribution a figure from a third paper. (Figure 4 in the subject's proposal is a reproduction of figure 7 in the third paper.) He noted "this is a well-know figure in the . . . research community. . . . While this figure should have been referenced, it is not a significant part of the proposal,"[18] because the subject does not even mention the figure in the text. The figure caption in the proposal contains approximately 2.5 lines copied from the figure caption of third paper.

CITATIONS TO THE SOURCES OF THE COPIED MATERIAL

The subject included the source and background paper in his list of references (see pg. 20 of Tab 1). His proposal contains five references to the source paper: one on page 4, two on page 7, one on page 10, and one on page 17 (see Tab 1).[19] The

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[16] Tab 6, pg. 1.
[17] *Ibid.*, pg. 2.
[18] *Ibid.*
[19] The five references in the proposal to the source paper are:

proposal contains 5 references to the background paper: one on page 6, one on page 11, two on page 12, and one on page 13.[20] Although the subject included references in his proposal to the source and background papers, it was not adequate to convey to the reader the fact that he used ideas, verbatim text, formulas, references, and a figure from the source paper and verbatim text from the background paper in his proposal without properly distinguishing them and without sufficient attribution.

- The reference on pg. 4 (Project Summary) simply indicated that the authors of the source paper "established . . . that tornadoes transfer a substantial amount of energy to the ground."
- The first reference on pg. 7 (Identification and Significance of the Problem or Opportunity) acknowledged "evidence that seismic signals are produced by a tornado in contact with the ground was reported [citation to source paper]. The report is physically sound and provides us with a completely new way of detecting when a tornado hit the ground." Although the subject acknowledged the report for the "new way of detecting tornado[es]," it was inadequate to distinguish the material, including the idea and feasibility of the proposed instrument, that the subject copied from the source paper. It does not convey to the reader that the idea and associated instrument were not his.
- The second citation to the source paper on pg. 7 was very similar in content to the citation on pg. 4 and stated that '[t]ornadoes generate a substantial amount of kinetic energy [citation to source paper]."
- The citation on pg. 10 (Tornadic Seismic Waves and Spectral Properties) was to a formula derived by the authors of the source paper: "This rate [of energy expanded by the tornado due to turbulent shear] as established by [citation to source paper] is given by the formula . . ." Although the subject copied five formulas in his proposal from the source paper, this was the only one he referenced as originating from the source paper.
- The last citation (Related Work) on pg. 17 indicated that with "the exception of [the authors of the source paper], we are not aware of efforts toward detecting tornadoes on the basis of their interactions with the ground."

[20] The five references in the proposal to the background paper are:

- The reference on pg. 6 (Identification and Significance of the Problem or Opportunity) cites the background paper for information on Doppler radar: "The capability of Doppler radar to measure advancing and receding air motion provides a valuable source of information on storm processes frequently associated with developing tornadoes [citation to background paper]."
- The reference on pg. 11 (Doppler Radar: Advantages, Limitations, and Shortcomings) again indicated that the background paper had information about Doppler radar: "Functional limitations though are known to effect Doppler-radar, thus reducing their usefulness [citation to background paper]. Below is a short description of the main limitations." The subject then copied verbatim 20 (out of 25) lines in this section of his proposal from the background paper. The statement of a description does not necessarily imply the description that follows was based on or copied from the background paper and the copied text was not distinguished from the subject' own.
- The first reference on pg. 12 indicated that the authors of the background paper "note[d] that typically, these boundaries are hard to detect beyond 100km (50nm) range." Although the subject cited this verbatim-copied sentence from the background paper, he did not distinguish it from his own text.
- The second reference on page 12 is for a figure that is xerographically reproduced from the background paper.
- The reference on pg. 13 identifies the material as originating from the background paper, but does not otherwise distinguish the sentences as being copied verbatim from the background paper. Nevertheless, these two lines were not included in our line count of verbatim copying.

The Program Director also addressed the sufficiency of the references in the proposal. He noted that "in key places, proper attribution is not given. . . . The first sentence of Section III.1 does refer to the [source] paper, but, in [his] opinion, it would not be clear to a reader that the subsequent discussion has its origins in the [source] paper. The overlap is substantial. Non-attribution is significant and serious."[21] Also, "[i]n this sub-section [III.2], [the source paper] is referenced just before equation (3). Given the verbatim overlap before and after this reference, in [his] opinion, a reader likely would not appreciate the fact that this derivation would be found almost verbatim in [the source paper]. [He] consider[ed] the attribution to be marginal and inadequate."[22]

THE SUBJECT'S ROLE

This proposal was submitted by a small business of which the subject was president and which lists only two employees. There is no directory telephone or address listing for the company; the address the subject used for the company is, in fact, his home address and the telephone number is, likewise, his personal number. The subject is the only person for whom funding was requested, and the only *curriculum vitae* included in the proposal was the subject's. Also, the subject alone signed the certification page (both as PI and Authorized Organizational Representative). We conclude it is not likely that the other employee prepared the proposal, and that the subject was solely responsible for the preparation and submission of the proposal, and thus, solely responsible for the copied material in the proposal. We have no statements from the subject to indicate otherwise.

ANALYSIS REGARDING MISCONDUCT IN SCIENCE

NSF defines misconduct in science, in relevant part, as "[f]abrication, falsification, plagiarism, or other serious deviation from accepted practices in proposing, carrying out, or reporting results from activities funded by NSF" (45 C.F.R. § 689.1(a)(1)). A finding of misconduct in science against a subject requires that the subject both committed a bad act and did so with a level of culpable intent that justifies taking action against the subject. In order to make a finding of misconduct, the subject must have acted, minimally, with gross negligence. NSF's standard of proof in evaluating each element of misconduct in science is a preponderance of the evidence.

THE ACT

The evidence shows that the subject copied approximately 118 lines of verbatim text, 6 references, 5 formulas, and 2 figures (including the intellectual ideas

[21] Tab 6, pg. 1.
[22] *Ibid.*, pg. 2.

described in the copied material) from three published papers into the proposal he submitted to NSF.

INTENT

We believe the subject acted culpably when he copied without distinction and attribution from three published papers into his proposal. Because copying is inherently a knowing activity, we therefore conclude the subject acted knowingly. Without input from the subject, we can only make reasonable inferences from the evidence available to us about the subject's intent. We believe a preponderance of the evidence supports the conclusion that his intention was to deceive NSF's reviewers and Program Director into believing that these were his ideas, and that he had the expertise and knowledge to carry out the project represented by those ideas.

The subject copied extensive material from the three published papers. It is simply inconceivable that he could have inadvertently copied such a large quantity and variety of material (verbatim text, figures, formulas, and references) without intending to. In particular, two figures from two different published papers were xerographically reproduced and included in his proposal without any citation or acknowledgment—an unlikely unintentional occurrence. In light of the fact that the subject did provide some citations to the source documents within the proposal, including some properly referenced figures, it is not possible that the subject merely forgot to provide the appropriate references and to distinguish the copied text from his own. The subject demonstrated a selective use of citations, not a lack of knowledge about how to use them.

Part of the subject's motive for copying so much from the source paper was likely the fact that he apparently did not have the scientific knowledge or expertise to carry out original research in this field. He had a theoretical background in physics—quantum topology—but claimed in his proposal that his "principal [*sic*] field of research includes the development of automated characterization of seismic events for cluster of earthquakes and man-made explosions and monitoring of nuclear proliferation."[23] There was nothing in the subject's publication history or *curriculum vitae* that indicated such a claim was justified. As a result, the subject most likely copied so much material in order to mislead the SBIR Program Manager and reviewers into thinking that he was indeed an expert in this area and to enhance his odds of obtaining an award. It is undoubtedly easier to use someone else's words and ideas to appear as an expert than to actually become an expert. Thus, by significantly copying from other experts in the field, the subject sought to give the appearance of competency. The referees were not misled, however, and one in particular noted that the subject "has little understanding of seismometry, despite the unsubstantiated claim (re: the CV) that this is his 'principal field.'" The failure of the subject's effort to mislead does not diminish the significance of his

[23] Tab 1, pg. 17.

effort with regard to assessing the subject's intent. Consequently, we believe the subject knowingly copied without distinction or attribution from three published papers into his proposal to procure a favorable review of his proposal.

SERIOUSNESS

By portraying the work of other scientists as his own, the subject seriously deviated from the accepted practice, not only in his scientific community, but also in the wider scientific and engineering community. The subject's references to the two papers (source and background) are completely inadequate to indicate that he substantially copied, verbatim text, a figure, formulas, and references from the papers into his proposal. OIG also believes that a figure was copied from an uncited third paper without any attribution is indicative of a pattern of neglect in citing others' works.

What NSF expects from scientists and engineers who submit proposals is clearly spelled out in the *Grant Proposal Guide*, which contains the forms used to submit proposals to NSF:[24]

> NSF expects strict adherence to the rules of proper scholarship and attribution. The responsibility for proper attribution and citation rests with authors of a research proposal; all parts of the proposal should be prepared with equal care for this concern. Serious failure to adhere to such standards can result in findings of misconduct in science.
>
> . . .
>
> [The proposal] should present the merits of the proposed project clearly and should be prepared with the care and thoroughness of a paper submitted for publication.

The subject signed the Certification Page both as PI and as his company's Authorized Organizational Representative (see Tab 1). The subject

> certif[ied] to the best of [his] knowledge that: . . . (2) the text and graphics herein as well as any accompanying publications or other documents, unless otherwise indicated, are the original work of the signatories or individuals working under their supervision.

Thus, the subject falsely certified to the originality of the proposed work. Also, the subject seriously deviated from not only what NSF expects, but what the scientific community expects. The professional society of the field in which the subject received his degree and in which he practiced states:[25]

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[24] NSF 95-27, Section A.3. and Section B, Pg. 1.

[25] The American Physical Society (APS) Guidelines for Professional Conduct. The APS statement is available at http://aps.org/conduct.html.

> Each physicist is a citizen of the community of science. Each shares responsibility for the welfare of this community. Science is best advanced when there is mutual trust, based upon honest behavior, throughout the community. Acts of deception, or any other acts that deliberately compromise the advancement of science, are therefore unacceptable. Honesty must be regarded as the cornerstone of ethics in science.
>
> . . .
>
> Plagiarism constitutes unethical scientific behavior and is never acceptable. Proper acknowledgement of the work of others used in a research project must always be given. Further, it is the obligation of each author to provide prompt retractions or correction of errors in published works.

In fact, plagiarism is typically a part of the definition of scientific misconduct in every major professional society.[26] NSF's definition of misconduct in science uses plagiarism as a paradigmatic example of a serious deviation from accepted practices.

Plagiarism involves using as one's own, without distinction or proper attribution, either the words or the ideas of another person. This includes transcribing another's words or presenting his or her ideas without attribution in any section of a proposal submitted to NSF. When a proposal author transcribes material, as the subject did in his proposal, he must mark it off from the other text in his proposal so that it is distinguishable by font, indentation, quotation marks, or other means, from the material he authored. Providing a citation, while necessary, is not sufficient. A citation to the source is necessary and sufficient only if an author uses the ideas or methods drawn from another source, but describes them in his own words. In this case, the subject not only used ideas and methods drawn from the source paper, but used the same words as the author of the source paper and, therefore, was obligated to do more than simply provide a citation to the source paper. In addition to a citation, the subject should have also distinguished the material he copied from the source paper. On the other hand, the fact that the subject included some citations to the source and background papers makes this case less serious than those warranting the most serious sanctions (such as debarment).

The Program Manager[27] who handled this review stated that SBIR proposals often have problems with citations. Although the Program Manager said that he did not have expertise in this particular field and could not address the allegation of

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[26] See the report of an OIG study conducted in the summer of 1995 in Semiannual Report number 14, pp. 48-50.

[27] (name redacted). In general, Program Directors for the SBIR program receive proposals on a wide variety of topics and consult with appropriate experts on a proposal's evaluation.

intellectual theft, he did not think that the copied material was as bad as it could have been because most of it was in the Technical Background section of the report. However, he also told OIG that extensive use of others' material, particularly in the background section, could indicate to reviewers that the subject knew the background material and had an understanding of the fundamentals of the problem. If the copied material had been properly attributed and distinguished, the Program Director thought "little original would be left in the background section, but it is not necessary that this part be original." However, "[o]ne might question the [PI's] knowledge and appreciation of the subject." The Program Director then illustrated this point with an example from the proposal where "[o]ne interpretation is that the [PI] has mindlessly copied this part of the paper without any understanding. This fact does not leave one feeling confident that the [PI] has a good handle on the subject."[28]

By copying material verbatim without sufficient attribution or distinguishing it, the subject presented not only the copied material *per se*, but the ideas represented by that material as his own. The Program Director—who is an expert in this field—thought "[t]he overlap [between the background section of the proposal and source paper] is substantial. Non-attribution is significant and serious," and the copying occurred in "a part of the proposal [that] is certainly very significant and important to the proposal."[29] Additionally, he thought that "the proposal does make use of the intellectual ideas presented in the" source paper.[30]

CONCLUSION REGARDING MISCONDUCT IN SCIENCE

We conclude that in plagiarizing from three papers with the intent to deceive NSF's reviewers and Program Manager, the subject acted knowingly. Since the evidence established that the subject copied material and ideas from three published papers without distinction or attribution, and that he did so knowingly, we conclude he committed plagiarism—a serious deviation from accepted practices and misconduct in science.

RECOMMENDED DISPOSITION

Under 45 CFR § 689.2(b) of NSF's misconduct in science and engineering regulation, when deciding what actions are appropriate when misconduct is found, NSF officials should consider the seriousness of the misconduct, the intent with which the subject acted, any evidence of a pattern, and finally, its relevance to other funding requests or awards involving the university or the individual.

We conclude the subject acted knowingly when he plagiarized, that this behavior was a serious deviation from the practices of both the subject's research community

[28] Tab 6, pg. 2.
[29] *Ibid.*
[30] *Ibid.*, pg. 1.

as well as the broader scientific community, and that it violated NSF's expectation that proposals be prepared with all the care afforded a scientific paper. As president of his company and as an applicant for NSF funds, it is incumbent upon the subject to ensure that the high scientific standards expected by the community and NSF are upheld. The evidence casts doubt on the ability of the subject to uphold these standards. It is also troubling that the subject provided no cooperation in response to OIG's request for information, nor made any attempt to correct NSF's records.

OIG believes that the certification action recommended below is an appropriate action to take in this case. It ensures that, if the subject affiliates himself with an NSF-supported activity, he must (a) state that he has not committed additional acts of plagiarism, and (b) provide for an independent review of his documents. The subject plagiarized from published papers that are openly available to the community. Because these papers are likely to have been read by experts in the field, one must assume that plagiarism from these papers carries a higher risk of detection than plagiarizing from confidential documents that are not accessible to the community. Thus, OIG believes the subject is equally, if not more, likely to plagiarize from confidential documents and recommends that the subject not be allowed to act as a proposal reviewer for 3 years from final disposition of this case.

OIG recommends several actions by NSF in response to the misconduct in science by the subject.

1. NSF should send a letter of reprimand to the subject informing him that NSF has made a finding of misconduct in science against him.[31]
2. For 3 years from the final disposition of this case, NSF should require the subject to obtain certification, signed by himself and co-signed by the PI or manager of any federally sponsored research, that any documents the subject prepares in connection with the research project contain no plagiarism, i.e., the documents are either entirely the work of the subject, or they distinguish others' work and contain the appropriate references.[32] The subject's and PI's certification should be sent to the Assistant Inspector General for Oversight for retention in OIG's confidential file on this matter.
3. NSF should exclude the subject from participating as an NSF reviewer, advisor, or consultant for 3 years from the final disposition of this case.[33]

We suggest that, prior to taking final action on this misconduct in science matter, NSF also consider whether the subject has been convicted of a crime that would warrant a debarment (see next section and 45 C.F.R. § 620.305(a)(3)).

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[31] This is a Group I action (§ 689.2(a)(1)(i)).
[32] This is a Group I action (§ 689.2(a)(1)(iii)).
[33] This is a Group III action (§ 689.2(a)(3)(iii)).

THE SUBJECT'S RESPONSE TO OUR REPORT

We sent the subject a copy of our draft report, via Federal Express, on February 27, 1998. Federal Express delivered it to the subject's address on March 3, 1998. When we did not receive a response, we attempted to contact the subject again. We learned that he was arrested on March 11, 1998, and remains in custody. The subject's attorney informed us that the subject told him that he had not received our draft report.[34] The misconduct regulation provides that, under unusual circumstances, we may forward an investigation report without comments from the subject, and we believe this case constitutes such circumstances.[35] We are concurrently sending the subject this report, and we are asking him to respond directly to NSF's Deputy Director by May 4, 1998.

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[34] The subject's attorney also told us that he does not represent the subject with regard to anything other that his criminal defense in that case.

[35] Section § 689.8(c)(2)(i) states: "Except in unusual circumstances, the investigation report will be provided by OIG to the subject of the investigation, who will be invited to submit comments or rebuttal. Comments or rebuttal submitted within the period allowed, normally thirty days, will receive full consideration and may lead to revision of the report or of a recommended disposition."