

Audit of Industry-University Cooperative Research Center: Center for Space, High- Performance, and Resilient Computing — University of Pittsburgh





At a Glance

Industry-University Cooperative Research Center Audit: Center for Space, High-Performance, and Resilient Computing — University of Pittsburgh
OIG 24-1-010 | May 10, 2024

WHY WE DID THIS AUDIT

We conducted an audit of NSF's Center for Space, High-Performance, and Resilient Computing (SHREC) award to the University of Pittsburgh (Pitt) to determine if Pitt mitigated potential conflicts of interest; properly managed and accounted for program income; and if costs claimed on awards were allowable, allocable, reasonable, and in accordance with NSF award terms and conditions and applicable federal requirements.

WHAT WE FOUND

Pitt generally complied with SHREC award requirements. Pitt properly tracked and reported its SHREC membership dues and expenditures of program income. Pitt had a policy on conflicts of interest that met all the award requirements and followed that policy for the SHREC award. We found one unallowable cost related to the purchase of promotional items in our sample of 29 award transactions.

WHAT WE RECOMMEND

We made one recommendation to resolve questioned costs.

AGENCY RESPONSE

Pitt agreed with the one recommendation and stated it removed the \$1,350 in unallowable direct and indirect costs from the project. We have included Pitt's response to this report in its entirety in Appendix B.

CONTACT US

For congressional, media, and general inquiries, email OIGPublicAffairs@nsf.gov.



U.S. NATIONAL SCIENCE FOUNDATION
Office of Inspector General

MEMORANDUM

DATE: May 10, 2024

TO: Quadira Dantro
Director
Division of Institution and Award Support

Jamie French
Director
Division of Grants and Agreements

FROM: Theresa S. Hull [REDACTED]
Assistant Inspector General
Office of Audits, Inspections, and Evaluations

SUBJECT: Final Report No. 24-1-010, *Audit of Industry-University Cooperative Research Center: Center for Space, High-Performance, and Resilient Computing — University of Pittsburgh*

Attached is the final report on the subject audit. We have included the University of Pittsburgh's response to the draft report as an appendix.

Please coordinate with our office during the 6-month resolution period, as specified by OMB Circular A-50, to develop a mutually agreeable resolution of the audit findings. The recommendation should not be closed until NSF determines that the recommendation has been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

We appreciate the courtesies and assistance NSF staff provided during the audit. If you have any questions, please contact Jeremy Hall, Audit Manager, at 703-292-7100 or OIGPublicAffairs@nsf.gov.

CC: Stephen Willard, Dan Reed, Victor McCrary, John Veysey, Ann Bushmiller, Karen Marrongelle, Teresa Grancorvitz, Christina Sarris, Janis Coughlin-Piester, Judy Hayden, Alex Wynnyk, Behrooz Alex Shirazi, Prakash Balan, Rochelle Ray, Charlotte Grant-Cobb

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Abbreviations

IUCRC	Industry-University Cooperative Research Center
OSP	Office of Sponsored Programs
PAPPG	Proposal & Award Policies and Procedures Guide
Pitt	University of Pittsburgh
SHREC	Center for Space, High-Performance and Resilient Computing

Background

The National Science Foundation is an independent federal agency created by Congress in 1950 “[t]o promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes” (Pub. L. No. 81-507). With a budget of about \$9.9 billion (FY 2023), NSF is the funding source for about 25 percent of all federally supported basic research conducted by America’s colleges and universities. Each year, NSF supports about 318,000 scientists, engineers, educators, and students at universities, laboratories, and field sites.

Industry-University Cooperative Research Center (IUCRC) Program

NSF created the Industry-University Cooperative Research Center (IUCRC) program in 1973 to foster long-term partnerships among academia, industry, and government. These partnerships support research programs of mutual interest, contribute to the nation's research infrastructure base, promote workforce development, and facilitate technology transfer. In its fiscal year 2024 budget request to Congress, NSF requested nearly \$22 million for the IUCRC program for FY 2024.

The IUCRC program provides a structure for academic researchers to conduct fundamental, pre-competitive research of shared interest to industry and government organizations. Universities identify a research topic of interest to industry and apply for support from NSF. If approved, the university uses NSF funds¹ to plan and operate the IUCRC, or Center, or to join an existing Center. Industry members, such as large and small businesses, startups, non-profit organizations, and government agencies, pay membership fees to support the Center’s research costs and activities. NSF provides funding for administrative costs and a governance framework to manage membership, operations, and evaluation.

New IUCRCs start with a planning award and proceed to a Phase I award that lasts 5 years. At the time of the award under audit, IUCRC awardees in Phase 1 could request support for two subsequent 5-year awards (Phase II and Phase III).² IUCRCs are expected to grow and be independently sustainable by the end of the NSF support.

According to the IUCRC Program Solicitation,³ membership fees received by the center are considered program income. Awardees must use at least 90 percent of the IUCRC program

¹ Throughout this report, we referred to NSF funds as award transactions, direct award costs, or costs claimed on the award.

² NSF 20-570, *Industry-University Cooperative Research Centers Program (IUCRC) Program Solicitation*, posted May 7, 2020, moved IUCRC to a two-phase model, and replaced NSF 17-516, posted November 7, 2016.

³ NSF 17-516, dated November 7, 2016. The program solicitation specifies additional award conditions and reporting requirements and is incorporated by reference into the award.

income to support direct costs of the research and may use up to 10 percent to support indirect costs.⁴

Center for Space, High-Performance, and Resilient Computing

The Center for Space, High-Performance, and Resilient Computing (SHREC) is one of NSF's more than 80 active IUCRCs. Launched in 2018, SHREC assists industrial partners, government agencies, and research organizations in mission-critical computing research in the following areas:

- space computing for earth science, space science, and defense;
- high-performance computing for a broad range of applications; and
- resilient computing for dependability in harsh or critical environments.

We reviewed the SHREC award to University of Pittsburgh (Pitt). At the time of our audit, the award was in the final year of its Phase I award. At Pitt, the Office of Sponsored Programs (OSP) provides oversight related to proposal and awards in accordance with all applicable laws, policies, and regulations.

Audit Objectives

The objectives of this audit were to determine if Pitt mitigated potential conflicts of interest; properly managed and accounted for program income; and claimed costs on awards that were allowable, allocable, reasonable, and in accordance with NSF award terms and conditions and applicable federal requirements. Please see Appendix A for more information about our objectives, scope, and methodology.

Results of Audit

Pitt generally complied with SHREC award requirements. Pitt properly tracked and reported its SHREC membership dues and expenditures of program income. Pitt had a policy on conflicts of interest that met all the award requirements and followed that policy for the SHREC award. We found one unallowable cost related to the purchase of promotional items in our sample of 29 award transactions.

⁴ Per 2 CFR § 200.1, "Indirect (facilities & administrative (F&A)) costs means those costs incurred for a common or joint purpose benefitting more than one cost objective, and not readily assignable to the cost objectives specifically benefitted, without effort disproportionate to the results achieved."

Pitt Met SHREC Award Requirements

Pitt met SHREC award requirements in properly tracking program income and expenditures and complying with conflict of interest requirements.

Pitt Tracked Program Income and Expenditures and Met Membership Requirements

We found that Pitt complied with award requirements for tracking and reporting the amounts of program income received and expended. It created a unique fund for each SHREC-sponsored project by year and fully accounted for all the membership fees it received. Pitt retained signed membership agreements for its members. Pitt's OSP annually submitted program income earned and the amount expended in a Program Income Reporting Worksheet to NSF's Division of Financial Management. Pitt also annually certified IUCRC membership and the amount of program income received from each member as required by the award solicitation.

Pitt Complied with Conflict of Interest Requirements

NSF's *Proposal & Award Policies and Procedures Guide* (PAPPG)⁵, which is incorporated by reference into the award, requires each grantee organization employing more than 50 persons to maintain an appropriate written and enforced policy on conflicts of interest and that all conflicts of interest for each award be managed, reduced, or eliminated prior to the expenditure of award funds. Among other things, the organizational policy should require that each investigator disclose all significant financial interests that would be affected by the research or activities funded or proposed for funding by NSF.

Pitt's conflict of interest policy covered all NSF requirements and required investigators to disclose financial interests related to their institutional duties and complete conflict of interest training before engaging in sponsored research. We tested Pitt's compliance with its conflict of interest policy and found applicable staff met the training and financial disclosure requirements. There were no conflicts disclosed, so no mitigation was required.

⁵ The PAPPG, in conjunction with the applicable standard award conditions incorporated by reference in the award, serve as NSF's implementation of 2 CFR Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*.

Nearly All Expenditures in Our Sample Were Allowable, Allocable, and Reasonable

We tested judgmentally selected samples of some of Pitt's largest, and most frequent, program income and direct award expenditures reported for the SHREC award. The sample included expenditures such as travel, equipment, supplies, scholarships, and payroll. Of the 29 award transactions in our sample, we found that costs reported in 28 transactions were allowable, allocable, reasonable, and in accordance with NSF and federal requirements.⁶ We found one unallowable award transaction related to the purchase of promotional items.

Program Income Expenditures

Pitt primarily used program income funds to pay SHREC scholarships for individuals conducting research and for research supplies. Our review of policies and procedures showed that Pitt generally has adequate internal controls in place related to purchases with program income. We tested 15 program income transactions totaling \$251,906 and found they were generally allowable, allocable, reasonable, and in accordance with NSF and federal requirements.

Direct Award Expenditures

Pitt primarily used the NSF award funds to pay for administrative staff and SHREC conferences, as intended by the award criteria. Pitt provided employment verification supporting rate of pay and effort certifications supporting time that the sampled individuals worked on SHREC-related projects. Our review of policies and procedures showed that Pitt generally has adequate internal controls in place related to purchases with federal funds. We tested a sample of 14 award transactions totaling \$110,130 to determine if costs claimed by Pitt were allowable, allocable, reasonable, and in conformity with NSF award terms and conditions and applicable federal requirements. Of these, we found one unallowable promotional expense totaling \$1,350.

Specifically, in December 2018, Pitt charged \$863 in direct costs and \$487 of associated indirect costs to the SHREC award for laptop covers with the SHREC logo. Federal regulation states that unallowable advertising and public relations costs include the costs of promotional items and memorabilia.⁷ Therefore, we question a total of \$1,350 in unallowable promotional items and the associated indirect costs.

⁶ For definition of allowability, allocability, and reasonableness, please see Appendix B.

⁷ 2 CFR § 200.421(e)(3), unallowable advertising and public relations costs include the costs of promotional items and memorabilia.

Table 1. Total Questioned Costs to the NSF Award

Transaction	Total Direct	Total Indirect	Total Questioned
Unallowable Promotional Items	\$863	\$487	\$1,350
Total	\$863	\$487	\$1,350

Source: NSF OIG Transaction Testing on NSF Award 1738783

Recommendation

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Resolve the \$1,350 in unallowable direct and indirect costs.

OIG Evaluation of Agency Response

Pitt agreed with the one recommendation and removed the cost from the project as of April 25, 2024. We have included Pitt's response to this report in its entirety in Appendix B.

Appendix A: Objectives, Scope, and Methodology

Audit Objectives

The objectives of this audit were to determine if Pitt mitigated potential conflicts of interest; properly managed and accounted for program income; and claimed costs on awards that were allowable, allocable, reasonable, and in accordance with NSF award terms and conditions and applicable federal requirements.

Scope and Methodology

We conducted this audit from April 2023 to May 2024 in accordance with *Generally Accepted Government Auditing Standards*. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions, based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions.

To accomplish our objectives, we selected Pitt's IUCRC SHREC award for review. Specifically, we analyzed the requirements in NSF's IUCRC program solicitation NSF 17-516, grant general conditions, research terms and conditions, 2 CFR Part 200, and PAPPG applicable to the award. We tested compliance with these requirements, including Pitt's conflict of interest policies. We interviewed the award's principal investigator and OSP staff.

We tested judgmentally selected samples of some of Pitt's largest, and most frequent, direct award⁸ and program income expenditures⁹ reported for the SHREC award to determine if costs claimed by Pitt were allowable, allocable, reasonable, and in conformity with NSF award terms and conditions and applicable federal requirements. We tested Pitt's compliance with its conflict of interest policy for applicable staff on the SHREC award.

We also obtained computer-processed data from Pitt and NSF during our audit. Pitt provided detailed transaction data for costs charged to the NSF award, and we obtained NSF award data by directly accessing NSF's data systems. We assessed the reliability of data by (1) interviewing Pitt staff knowledgeable about the data, (2) reviewing information about the data and the system that produced them, and (3) performing reconciliations and testing of various data elements. We determined that the data were sufficiently reliable for the purposes of this audit.

⁸ Pitt claimed to have expended \$600,000 of its SHREC award. We judgmentally selected a sample of 14 of 1,257 transactions based on amount and account description totaling \$110,130 to test.

⁹ Pitt claimed to have expended \$3,350,168 in SHREC program income. We judgmentally selected a sample of 15 of 924 transactions based on amount and account description totaling \$251,906 to test.

Internal Control Assessment

In assessing the allowability of Pitt costs claimed, we gained an understanding of the internal control structure applicable to the scope of the audit through interviewing Pitt staff, reviewing policies and procedures, reviewing transactions and accounting system documentation, and conducting transaction testing. We assessed the five components of internal control: control environment, risk assessment, information and communication, monitoring activities, and existing control activities.

Appendix B: Auditee Response



May 3, 2024

Theresa S. Hull
Assistant Inspector General for Audits
Inspections and Evaluations

Office of the Controller
Sponsored Projects Accounting

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Dear Ms. Hull:

The University of Pittsburgh (University) appreciates the opportunity to work with the National Science Foundation (NSF) Office of Inspector General to examine its internal controls and sponsored programs accounting practices for the Industry-University Cooperative Research Center Audit Center for Space, High Performance, and Resilient Computing award.

The University takes very seriously its obligation to administer NSF awards in compliance with all applicable laws, regulations, policies, and requirements. As such, the University welcomes the recommendations and opportunities to improve its sponsored programs practices and is committed to continuing to enhance policies and procedures to strengthen internal control functions. To that end, the University assessed the recommendation from the report and has resolved the \$1,350 of unallowable direct (\$863) and indirect (\$487) costs by removing the costs from the project on April 25, 2024. The University looks forward to further discussing these costs and providing any requested additional supporting information to NSF as part of the resolution process.

Please find herein our management response to the questioned costs identified in the discussion draft report. If you have any questions, please do not hesitate to contact us.

Finding: Unallowable direct and indirect costs

The University concurs with the finding and recommendation and understands the importance of reviewing expenditures to ensure costs are reasonable, allowable, and allocable. The unallowable cost was not the result of a control failure as management originally felt the cost would be allowable for the purpose of attracting and maintaining memberships. The University has documented this decision and will ensure no future like expenses will be direct charged to NSF awards without prior approval of an exception. The direct charge and associated indirect recovery were removed from the award on 4-25-24.

We appreciate this opportunity to respond to the NSF and the consideration offered the University throughout the audit process. We take our role as financial stewards along with this process and the resultant recommendations seriously. The University has a longstanding commitment to integrity, and we believe the results of this audit will assist in strengthening its sponsored program administrative policies and procedures.

Sincerely,

David Laffey
Dave Laffey Director

Appendix C: Definitions of Allocable, Allowable, and Reasonable Costs

Allocable Cost: According to 2 CFR § 200.405, a cost is allocable to a particular federal award or other cost objective if the goods or services involved are chargeable or assignable to that federal award or cost objective in accordance with relative benefits received. This standard is met if the cost:

- (a) Is incurred specifically for the federal award.
- (b) Benefits both the federal award and other work of the non-federal entity and can be distributed in proportions that may be approximated using reasonable methods.
- (c) Is necessary to the overall operation of the non-federal entity and is assignable in part to the federal award in accordance with the principles in this subpart.

Allowable Cost: According to 2 CFR § 200.403, except where otherwise authorized by statute, costs must meet general criteria in order to be allowable under federal awards, including the following three criteria:

- (a) Be necessary and reasonable for the performance of the federal award and be allocable thereto under these principles.
- (b) Conform to any limitations or exclusions set forth in these principles or in the federal award as to types or amount of cost items.
- (c) Be consistent with policies and procedures that apply uniformly to both federally-financed and other activities of the non-federal entity.

Reasonable Cost: According to 2 CFR § 200.404, a reasonable cost is a cost that, in its nature and amount, does not exceed that which would have been incurred by a prudent person under the circumstances prevailing at the time the decision to incur the cost was made.

National Defense Authorization Act

General Notification

Pursuant to Pub. L. No. 117-263 § 5274, business entities and non-governmental organizations specifically identified in this report have 30 days from the date of report publication to review this report and submit a written response to NSF OIG that clarifies or provides additional context for each instance within the report in which the business entity or non-governmental organizations is specifically identified. Responses that conform to the requirements set forth in the statute will be attached to the final, published report.

If you find your business entity or non-governmental organization was specifically identified in this report and wish to submit comments under the above-referenced statute, please send your response within 30 days of the publication date of this report to OIGPL117-263@nsf.gov, no later than June 17, 2024. We request that comments be in .pdf format, be free from any proprietary or otherwise sensitive information, and not exceed two pages. Please note, a response that does not satisfy the purpose set forth by the statute will not be attached to the final report.

About Us

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Contact Us

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