Audit of the American Institute of Mathematics

National Science Foundation Office of Inspector General

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ACRONYMS

AIM

American Institute of Mathematics

ARCC

AIM Research Conference Center

CPA

Certified Public Accountant

DMS

NSF's Department of Mathematical Sciences

FCTR

Federal Cash Transaction Report

FRG

Focused Research Group

GC-1

NSF's Grant General Conditions

OMB

Office of Management and Budget

A-110

OMB Circular A-110 Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations

A-122

OMB Circular A-122 Cost Principles for Non-Profit Institutions

A-133

OMB Circular A-133 Audits of States, Local Governments, and Non-Profit Organizations

BACKGROUND

The American Institute of Mathematics (AIM) is a nonprofit organization with goals "to further the frontiers of mathematics through focused collaborative research, to preserve the mathematical literature through the collection of a comprehensive mathematics library, and to accelerate the future discoveries of mathematics through targeted outreach activities, especially those that increase the integration of young people into mathematical research." Founded in 1994, AIM is located in Palo Alto, California.

As a National Science Foundation (NSF) awardee, AIM is required to follow the cost principles specified by OMB Circular A-122, Cost Principles for Nonprofit Organizations, the Federal administrative requirements contained in OMB Circular A-110, Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations and the audit requirements contained in OMB Circular A-133, Audits for States, Local Governments and Non-profit Organizations.

AIM is governed by a five-member Board of Trustees that oversees all of AIM's activities, including the approval of its general expenditures. AIM also has an Advisory Board responsible for giving advice on the general direction of AIM, a Scientific Board that evaluates and recommends workshops, and a Human Resources Board that is responsible for increasing members of under-represented groups, especially women, in the activities of the AIM Research Conference Center (ARCC).

In addition to NSF funding, AIM has a founding sponsor who provides AIM's office space and utilities. The sponsor also provided cash contributions of \$510,000, \$815,000, and \$720,000 respectively in FY 2002, 2003, and 2004 that paid for the Executive Director's compensation, workers compensation insurance, supplies, and other costs. The donated office space, utilities, and a portion of the cash contributions are used as cost sharing under the NSF ARCC award.

The seven NSF awards covered by this audit represent 100 percent of NSF awards reported in AIM's Federal Cash Transaction Report (FCTR) for the period ending December 31, 2005. The awards had cumulative NSF funding as of that date of \$6.1 million. Since 2002, NSF award expenditures have represented 55 to 75 percent of AIM's total expenses. In 2004, AIM's A-133 single audit reported \$1,309,554 in NSF award expenditures, representing 73 percent of AIM's total expenses.

Table 1 - AIM Awards and Effective Periods as of December 2005

Award			Award
Number	Period	Title	Amount
		ARCC: A National Conference	
DMS-0111966	7/2002 to 6/2006	Center	\$ 3,866,400
DMS-0138597	6/2002 to 5/2006	L-functions: Zeros and Values	\$ 69,000
		FRG: Random Matrix Models, Zeros	
DMS-0244660	6/2003 to 5/2006	of L-Functions and Arithmetic	\$ 989,823
		FRG: Holomorphic Curves in Low	
DMS-0244663	9/2003 to 8/2006	Dimensional Topology	\$ 828,000
		Graduate Opportunities in Number	
DMS-0352870	1/2004 to 12/2005	Theory and Random Matrix Theory	\$ 16,244
		FRG: Minimal Surfaces, Moduli	
DMS-0440545	5/2004 to 6/2006	Spaces and Computation	\$ 110,371
		FRG: Atlas of Lie Groups and	
DMS-0532088	7/2005 to 6/2006	Representations	\$ 229,957
	December 31, 2005	Cumulative Funding	\$ 6,109,795

OBJECTIVE, SCOPE, AND METHODOLOGY

The audit objective was to evaluate whether AIM's system of internal control was adequate to manage, account for, and monitor its NSF award funds in accordance with OMB and NSF award requirements. To accomplish the objective, we:

- Reviewed the NSF award jackets and AIM's A-133 audit reports;
- Interviewed NSF personnel in the Division of Grants and Agreements and the Division of Mathematical Sciences to discuss the purpose of the awards and the general and specific award requirements;
- Interviewed the AIM Executive Director and Financial Officer to discuss AIM's policies, procedures, and practices related to the administration of NSF awards;
- Discussed AIM's accounting system with its external accountants and auditors; and,

We reviewed and tested internal controls through inquiry of AIM personnel, inspection of randomly sampled documents and records, observation of AIM activities, and reconciliation of AIM's claimed costs to its OMB Circular A-133 audit reports and the FCTR submitted to NSF as of December 31, 2005. We conducted our audit in accordance with the Comptroller General's *Government Audit Standards* and included such tests of accounting records and other auditing procedures as we considered necessary to address the audit objective.

EXECUTIVE SUMMARY

We found that AIM did not establish an adequate system of internal controls as required by OMB Circular A-110, *Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations* or as recommended by the Committee of Sponsoring Organizations (COSO) in its *Internal Control – Integrated Framework*. Specifically:

- For the seven grants reviewed, with total funding of \$6.1 million, AIM was unable to provide adequate documentation to support (a) million of employee salary; (b) of NSF funds passed-through to subawardees or independent contractors; and (c) of travel, participant support, and indirect costs.
- AIM did not have a negotiated and approved indirect cost rate with NSF, its cognizant federal agency. Instead, AIM charged or cost shared almost all of its "indirect" costs directly to one NSF award. As a result, AIM may have charged as much as \$292,015 of costs to NSF that did not benefit the NSF award.
- AIM did not have a process to oversee its subrecipients and independent contractors. Specifically, AIM did not establish subaward or other agreements to set programmatic or financial reporting requirements, disbursed award funds based on budgeted rather than actual costs, and did not verify that the amount paid to these individuals was reasonable relative to the base salary paid by their employing institution.
- AIM's financial accounting system was unable to ensure accurate, current, and complete disclosure of the financial results of its NSF awards. We found that AIM used both an automated accounting system and manually prepared spreadsheets to track and report award costs by NSF award. However, the amounts reported in each of these systems did not agree.

Lack of familiarity with Federal grant requirements and lack of written policies and procedures were the primary factors contributing to these weaknesses. We believe that AIM needs to provide staff training and establish written policies and procedures for ensuring compliance with NSF grant requirements. Also, we made specific recommendations to improve AIM's internal controls over (1) employee salary charges, (2) the documentation and allocation of indirect costs, (3) NSF funds passed-through to subawardees or independent contractors, (4) participant support costs, (5) financial accounting and reporting, and (6) grant budget monitoring.

Summary of Auditee's Response

AIM's full response is at Appendix B, but excerpts of certain portions of the response are provided below.

AIM made many changes in our policies and procedures because of the audit recommendations and we are working to become expert in the applicable OMB Circular standards. We take this opportunity to mention that:

- Documentation for employee salaries is being done with the use of monthly Effort Reports starting with January 2006 payroll.
- All new subawardees and independent contractors are required to complete consultant agreements and other paperwork prior to work on our grants and programs.
- AIM has written a policy and implemented procedures requiring proper documentation of travel and participant support reimbursements.
- AIM plans to negotiate an indirect cost rate with NSF in the near future.
- The accounting system and methodology have undergone many changes including that the FCTR spreadsheets now are reconciled against the automated accounting system, and
- AIM is trying to provide current employees with additional training and will send one member to the NSF Regional Grants Conference in March 2007.

Auditors' Comments

AIM's comments appear responsive to the recommendations.

A. INTERNAL CONTROL SYSTEM WAS INADEQUATE

OMB Circular A-110 requires entities receiving Federal awards to establish and maintain internal controls that are designed to ensure compliance with Federal laws, regulations, and program compliance. Further, OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, defines internal control as "a process, effected by an entity's management and personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories: (1) effectiveness and efficiency of operations; (2) reliability of financial reporting; and (3) compliance with applicable laws and regulations."

In September 2004, the Committee of Sponsoring Organizations (COSO) reaffirmed that businesses and other entities should use the guidance provided in its *Internal Control – Integrated Framework* as the basis for establishing internal controls and providing the evaluation tools needed for assessing their control systems. Since its issuance in 1992, this *Framework* has served as a standard for assessing and enhancing organizational internal control systems. In 2006, the COSO issued additional guidance on how to apply the COSO framework cost-effectively to smaller organizations. In both large and small organizations, management sets the operational, compliance, and financial reporting objectives; puts the control mechanisms in place; and monitors and evaluates whether controls are operating as intended. Further, people make internal control work. Thus, an effective board of directors, experienced management, sufficiently trained personnel, and clear job descriptions and responsibilities are critical elements of a successful internal control program.

However, contrary to OMB requirements, we found that AIM had neither identified financial reporting and compliance objectives formally nor established and documented a system of internal control to accomplish those objectives. Specifically, AIM lacked written policies and procedures for (1) financial accounting and reporting; (2) procurement; (3) determining the allocability and allowability of costs charged or cost-shared to NSF awards; and (4) requesting funds from NSF. AIM has an employee handbook that describes its workplace standards and personnel policies and practices, but AIM did not maintain complete personnel files or clear job descriptions.

In addition, AIM's A-133 auditors in both FY 2003 and FY 2004 identified internal control weaknesses related to a lack of segregation of duties. While the auditors recognized that small organizations such as AIM cannot have ideal segregation of duties, they recommended that AIM's Executive Director and/or its Board of Trustees increase their grant monitoring activities. Responsive to the auditor's recommendations, the Trustees increased the Executive Director's financial monitoring responsibilities to address the concerns regarding segregation of duties.

We also found financial control areas that need improvement. These weaknesses are discussed in more detail in subsequent audit findings:

- AIM was unable to provide adequate documentation to support (a) \$1.57 million of employee salary, (b) \$882,054 of NSF funds passed-through to subawardees or independent contractors, and (c) \$23,531 of travel, participant support, and indirect costs.
- AIM did not have a negotiated and approved indirect cost rate with NSF, its cognizant federal agency. Instead, AIM charged or cost shared almost all of its "indirect" costs directly to one NSF award. As a result, AIM may have charged as much as \$292,015 of costs to NSF that did not benefit the NSF award.
- AIM did not have a process to oversee its subrecipients and independent contractors. Specifically, AIM did not establish subaward or other agreements to set programmatic or financial reporting requirements, disbursed award funds based on budgeted rather than actual costs, and did not verify that the amount paid to these individuals was reasonable relative to their base salary.
- AIM's financial accounting system was unable to ensure accurate, current, and complete disclosure of the financial results of its NSF awards. We found that AIM used both an automated accounting system and manually prepared spreadsheets to track and report award costs by NSF award. However, the amounts reported in each of these systems did not agree. As a result, award costs claimed by AIM for six of the seven NSF awards covered by our audit did not agree with the amounts reported to NSF on the December 31, 2005, FCTR.

To address these control weaknesses, AIM needs to ensure that its staff receive sufficient training in Federal award regulations and have clear job descriptions for its critical positions. To guide the Board of Trustees and AIM's employees, AIM needs to develop written policies and procedures for the conduct of financial and grant compliance duties. AIM's Board of Trustees should monitor and evaluate the implementation and effectiveness of AIM's Federal grant management processes on a continual basis.

Responsive to these concerns, AIM's Board of Trustees and the Executive Director have acknowledged, in correspondence subsequent to our visit, the seriousness of the identified grants management control deficiencies and the need to place a high priority on addressing them. The Executive Director reported that AIM's staff has presented detailed reports of AIM's financial transactions, grants, and audit items at each Board of Trustees meeting since July 2006, and that one trustee now acts as AIM's oversight official to review any audit findings and internal corrective actions.

Accordingly, we recommend that the NSF Directors of the Division of Grants and Agreements and the Division of Institution and Award Support direct AIM to develop and implement an internal control system to administer and monitor NSF funds. This process should include:

- 1. Developing written policies and procedures to guide AIM's Board of Trustees and its employees in the conduct of their financial and grant compliance duties;
- 2. Maintaining current and complete personnel files for all AIM employees and clear job descriptions for its critical financial and grant management positions; and,
- 3. Training and ensuring on an ongoing basis that personnel are knowledgeable of Federal and NSF grant regulations.

Auditee's Response

- A.1 AIM is working very hard to correct or establish proper policies and procedures that meet the standards and regulations that Institutions of our type are required to operate by. AIM's Executive Director and its Board of Trustees have increased financial monitoring activities and are mindful that this is an ongoing process. The Trustees have received detailed financial reports on a regular basis since July 2006.
- A.2 AIM's active employee files were determined to be complete and current as of June 2006 and job descriptions for the financial and grant management positions will be improved to ensure clarity and completeness.
- A.3 Key employee training will include at least one training/compliance seminar per year and key staff will be required to keep current with amendments and changes to OMB Circulars and NSF grants policies.

Auditors' Response

AIM comments appear responsive to the recommendations.

B. INTERNAL CONTROLS OVER THE DISTRIBUTION OF DIRECT AND INDIRECT COSTS WAS INADEQUATE

AIM did not establish internal controls for ensuring that salary and other costs were documented and distributed equitably to all AIM activities, including those not grant-related. Specifically, AIM did not have signed after-the-fact activity reports to account for the total activity of its salaried employees and did not have a negotiated indirect cost rate agreement with NSF, its cognizant Federal agency. As a result, (1) AIM could not support \$1.57 million in employee compensation, equivalent to 35 percent of claimed costs, and (2) may have allocated as much as \$292,015² of "indirect" costs to NSF that did not benefit the NSF awards.

OMB Circular A-122, Cost Principles for Non-Profit Organizations, requires that personnel costs be reasonable for, and allocable to, the performance of the award and be documented adequately. As such, grantees must have signed after-the-fact activity reports accounting for the total activity for which its employees are compensated and a process to distribute labor costs equitably to the activities benefited. The labor activity reports must be prepared at least monthly and must coincide with one or more pay periods. Budget estimates determined before the services are performed do not qualify as support for charges to awards. Also, salaries and wages of employees used in meeting cost-sharing requirements must be supported in the same manner.

Salary Costs Were Not Supported by Adequate Documentation

We found that AIM does not maintain labor activity reports for its salaried employees representing 90 percent of total employee labor costs charged to NSF. During the audit, we tested FY 2005 salary and wage transactions totaling \$107,796 and found that 94 percent (\$102,033) was not supported by signed activity reports as required by OMB Circular A-122.³ In addition, four of six salaried employees charged 100 percent of their time to the ARCC award⁴ although at least two employees, the Executive Director and the Financial Officer, have responsibilities for other AIM activities that are not funded by the NSF awards.

Cognizant or oversight agency means the Federal agency responsible for negotiating and approving indirect cost rates for an organization on behalf of all Federal agencies.

The estimate was derived by applying the non-Federal percentage of AIM's expenditures (27%, 25%, and 45% in 2004, 2003, and 2002) to costs charged and cost shared in those years for salaried employees compensation (exclusive of the Executive Director) and for maintenance, telephone, internet, and utility costs.

To support the salary and wages paid, AIM provided payroll records of the employees' gross pay, Federal taxes, state/local taxes, other deductions, and net pay.

One AIM employee drew salary from the ARCC award and summer salary from another award and about 77% of the Executive Director's salary is cost shared to the ARCC award.

AIM charged or cost shared million to NSF for employee salary and wages from 2002 to 2005. However, because AIM did not establish policies and procedures to implement the OMB A-122 documentation requirements for salary and effort distribution, its salaried employees did not maintain activity reports or certify that their effort was distributed equitably to all AIM activities, including those not grant-related. Only AIM's hourly wage employees maintained timecards subject to supervisory review each pay period, and thus, met the requirements to support award charges.

There was no documentation to verify the actual activities on which the salaried employees spent their time. As a result, we questioned \$1.57 million in labor costs of the salaried employees, including the cost-shared compensation, as unsupported costs. Employee compensation charged to NSF is shown in Table 2.

\$1,574,267

Table 2: Total Salary and Wages Charged For AIM Employees

AIM Does Not Have an Indirect Cost Rate

Total

OMB Circular A-122 allows grantees to charge both direct and indirect costs to NSF awards and provides several methodologies for calculating indirect cost rates. Indirect expenses include activities and supplies that have been incurred for common or joint objectives. Examples of indirect costs include the costs of operating and maintaining facilities and general administration and expenses, such as the salaries of **executive officers**, **personnel administrators**, **and accountants** [emphasis added]. Unlike direct costs, indirect costs benefit a number of awards or activities and are not easily traceable to a specific award. Thus, indirect cost charges generally appear in an award budget as a percentage of direct costs.

Although AIM is required to negotiate an indirect cost rate with NSF, its cognizant agency, AIM never requested an indirect cost rate from NSF because much of its "indirect" costs are paid by its founding sponsor or were proposed by AIM and approved by NSF to charge as direct costs to the NSF ARCC award. Further, although AIM pro-rates the value of the donated office space to NSF, it does not use a prorated methodology to distribute the rest of its indirect costs such as maintenance and utility costs. AIM charged the full cost of the Financial Officer to the ARCC award. However, attributing the salaried position directly to one NSF award ignores the management and administrative responsibilities inherent in that position for all of AIM's activities, which include some activities not funded by NSF awards. As noted in the previous section, the amount of effort contributed to indirect functions by salaried employees is undocumented.

As a result, we estimate that AIM may have claimed as much as \$292,015 in excess indirect costs to the NSF ARCC award for AIM's non-Federal activities. This estimate is based on a review of AIM's audited financial statements for fiscal years 2002 to 2004. During this three-year period, AIM incurred 25 to 45 percent of its total costs for activities not related to its NSF awards. We applied the non-Federal percentage of AIM's expenditures (27%, 25%, and 45% in 2004, 2003, and 2002) to costs charged and cost shared in those years for AIM's salaried employee compensation (exclusive of the Executive Director) and for maintenance, telephone, internet, and utilities.

Fiscal Total **Federal** Cost Non-Federal % Non-Year **Expenditures Expenditures Sharing** Activity **Federal** Activity 2002 \$1,517,583 \$626,129 \$208,775 \$682,679 2003 \$2,169,810 \$1,045,358 \$592,757 \$531,695 2004 \$2,518,118 \$1,309,554 \$536,751 \$671,813

Table 3 – Federal and Non-Federal Activity

Further, AIM overcharged the ARCC award for indirect costs that should have been allocated over all NSF awards. Because AIM does not have a process for establishing an annual indirect cost rate and did not maintain after-the-fact activity reports for its salaried employees, it is unable to provide an accurate cost disclosure for each NSF project and for AIM overall.

Recommendation

We recommend that the NSF Directors of the Division of Grants and Agreements and the Division of Institution and Award Support direct AIM to determine whether excess indirect costs have been charged to the ARCC award and to develop and implement a cost allocation system with policies and control processes to administer and monitor the allocation of direct and indirect costs to NSF awards and AIM's non-Federal activity. Specifically, AIM should:

- 1. Provide adequate documentation to support the million in claimed employee salary costs to ensure that the costs represent payments for actual services provided and are properly allocated, or return the funds to NSF;
- 2. Establish a process to document and certify monthly after-the-fact activity reports for direct and indirect cost activities of AIM's salaried employees;
- 3. Develop and implement written policies and procedures for the classification, recording, and reporting of direct and indirect costs in the accounting system;

4. Develop and submit an annual indirect cost proposal to NSF for review and approval by NSF's Cost Analysis and Audit Resolution Branch.

Auditee's Response

- B.1 AIM agrees that the claimed salary costs lacked documentation.
- B.2 AIM agrees and established a process for documenting and certifying the activities of AIM's employees in January 2006.
- B.3 AIM concurs and is in the process of developing and implementing written policies and procedures for the classification, recording, and reporting of direct and indirect costs in the accounting system.
- B. 4 AIM agrees that an indirect cost rate is needed and will develop and submit an annual indirect cost rate proposal to NSF.

Auditors' Response

AIM comments appear responsive to the recommendations.

C. MONITORING OF SUBAWARD AND INDEPENDENT CONTRACTOR COSTS WAS INADEQUATE

AIM did not have a process to oversee its subrecipients and independent contractors to ensure that costs charged to NSF awards were documented and benefited the NSF awards. As a result, percent of the paid to Principal Investigators (PIs) and students employed by other organizations was not supported.

OMB Circular A-110 states that award "recipients are responsible for managing and monitoring each project, program, **subaward** [emphasis added], function or activity supported by the award. Recipients shall monitor subawards to ensure subrecipients have met the audit requirements." OMB Circular A-133 also provides guidance on subaward monitoring responsibilities for primary grantees. Specifically, primary grantees should (1) monitor the subrecipient's use of Federal funds to provide reasonable assurance that subrecipients administer Federal awards in compliance with laws, regulations, and the provisions of award agreements and that performance goals are achieved and (2) ensure that subrecipients have met audit requirements. In addition, NSF's *Grant General Conditions (GC-1)*, July 2002, requires that subaward agreements "flow down" certain requirements to all subawardees including Article 23, *Audits and Records*.

In six of AIM's seven NSF awards, a significant part of the research effort was performed by PIs and students working at other academic institutions. However, AIM did not have an effective process to ensure that it was managing and monitoring its research costs at other institutions. Specifically, AIM did not have formal written agreements with its subrecipients that described the services to be performed; set the rate of compensation and requirements for financial and performance reporting; established termination provisions; or incorporated NSF award terms and conditions that would apply to these activities. Further, AIM did not require that its subrecipients provide evidence of their actual effort toward the funded projects to ensure that costs charged to NSF were documented and benefited the NSF awards.

As a result, we questioned as unsupported subrecipient costs because AIM disbursed award funds to institutions and individuals based on budgeted rather than actual costs, and did not maintain documentation to verify that the amount paid was based on the actual services rendered and was reasonable relative to the subrecipient's base salary.

Recommendation

We recommend that the NSF Directors of the Division of Grants and Agreements and the Division of Institution and Award Support direct AIM to provide adequate documentation supporting in costs paid to PIs and students who are located at other academic institutions and develop and implement a subaward monitoring system with policies and control processes to document, administer and monitor subaward costs charged to NSF awards. Specifically, AIM should:

- 1. Provide adequate documentation to support of claimed subaward and independent contractor costs to ensure that the costs represent payments for services provided and are reasonable in relation to the rate of compensation paid to these individuals by their home institutions, or return the funds to NSF;
- 2. Establish written contractual agreements for the services of its subrecipients, independent contractors and students; and,
- 3. Develop and implement a subaward monitoring system with policies and control processes to document, administer, and monitor subaward costs.

Auditee's Response

- C.1 AIM agrees that there was improper documentation to support some subaward and contractor cost. However, AIM has established a subawardee/contractor acquisition and monitoring system. The terms and rate of pay are reviewed for fair market value before acceptance by AIM. They are to complete the contract before work begins and arrangements are then made for payment. Invoices are submitted to AIM before payment is made.
- C.2 AIM agrees that there was a need to establish policies and procedures for obtaining services with subrecipients, contactors, and students. Beginning in January 2006, all new subrecipients or subawardees are required to complete a Consulting Agreement with AIM and our representative for each project.
- C.3 AIM agrees that it was necessary to develop and implement a subaward monitoring system with policies and controls. AIM developed and implemented a subawardee monitoring system with control processes to document, administer and monitor subawards. These will be reviewed to make sure that all requirements for working with and paying subawardees and consultants are in compliance with grant policies and OMB circulars.

Auditors' Response

AIM comments appear responsive to the recommendations.

D. AWARD COSTS CLAIMED FOR AUDIT DID NOT AGREE WITH COSTS REPORTED TO NSF; ACCOUNTING SYSTEM DOES NOT PROVIDE FOR THE COMPARISON OF BUDGETED TO ACTUAL COSTS.

OMB Circular A-110 Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations (A-110) requires that award recipient financial management systems provide accurate, current, and complete disclosure of the financial results of each award; effective control and accountability over all funds to ensure use is for authorized purposes; comparison of outlays with budget amounts for each award; and accounting records that are supported by source documentation. A-110 also requires that grantees maintain written procedures for determining whether costs are reasonable, allocable and allowable, and have written cash management procedures.

Our audit found that AIM was unable to ensure accurate accounting and reporting of its NSF awards. AIM used both an automated accounting system and manually-prepared spreadsheets to track its NSF award costs. However, the amounts reported in these systems did not agree. Further, neither system agreed with amounts reported to NSF or to audited costs reported in AIM's A-133 audits (See Table 4). As a result, we could not determine nor does AIM know which system is correct. Therefore, AIM cannot be sure that the amounts claimed to NSF are accurate and reliable.

Table 4 – Comparison of Claimed versus Audited/Reported Costs

	A-133 Audit	FCTR to	Claimed for		
	Report	NSF	Audit	Difference	Difference
Award	(A)	(B)	(C)	(A-C)	(B-C)
DMS-0111966					
2002	\$305,963	\$282,836	\$246,698	\$59,265	\$36,138
2003	\$787,642	\$809,544	\$827,333	(\$39,961)	(\$17,789)
2004	\$961,683	\$895,131	\$969,287	(\$7,604)	(\$74,156)
2005	N/A	\$1,206,867	\$1,136,936	N/A	\$69,931
DMS-0138597					
2002	\$15,042	\$15,040	\$10,040	\$5,002	\$5,000
2003	\$35,510	\$35,247	\$32,747	\$2,763	\$2,500
2004	\$10,000	\$10,001	\$10,438	(\$438)	(\$437)
2005	N/A	\$8,712	\$8,712	N/A	N/A
DMS-0244660					
2003	\$76,077	\$75,239	\$79,171	(\$3,094)	(\$3,932)
2004	\$218,495	\$219,333	\$236,332	(\$17,837)	(\$16,999)
2005	N/A	\$272,965	\$282,469	N/A	(\$9,504)
DMS-0244663					
2003	\$16,380	\$16,380	\$18,210	(\$1,830)	(\$1,830)
2004	\$41,713	\$31,284	\$30,737	\$10,976	\$547
2005	N/A	\$280,517	\$278,467	N/A	\$2,050
DMS-0440545					
2004	\$38,726	\$38,726	\$38,700	\$26	\$26
2005	N/A	\$6,000	\$11,224	N/A	(\$5224)

AIM was not aware of the discrepancies until we asked for a reconciliation of the award costs claimed for the period of our audit to the award costs reported by AIM in FCTR and A-133 audit reports. The reconciliation identified nearly 200 adjustments for the years under audit. These discrepancies occurred because the accounting system's chart of accounts was complex and did not facilitate tracking and reporting funds authorized, disbursed, and remaining separately for each NSF award. Further, the spreadsheets used to track and report quarterly grant disbursements to NSF were prepared manually and were not integrated with or reconciled to the accounting system.

While overall, the net differences between AIM's financial reporting systems are not material, if the grant financial information in AIM's system, reports, and resulting submissions to NSF is inaccurate, then the reviews performed by its Board of Trustees, AIM management, and NSF, will be of limited value.

Recommendation

Therefore, we recommend that the NSF Directors of the Division of Grants and Agreements and the Division of Institution and Award Support direct AIM to develop and implement a financial management and accounting system with policies and control processes to ensure that the accounting system tracks grant funds authorized, disbursed, and remaining separately for each NSF award. Specifically, AIM should:

- 1. Review and reconcile its grant expenditure data and amend the FCTR balances to correct any prior period errors for each of its active NSF awards;
- 2. Maintain and utilize one accounting system for recording, processing, summarizing, and reporting financial information to NSF;
- 3. Simplify its chart of accounts to the extent practical to facilitate accurate data entry and to ensure the system accounts for necessary cost information;
- 4. Perform timely reviews of award expenditures to ensure that each quarterly FCTR submitted to NSF is supported by its accounting system records.

Auditee's Response

- D.1 AIM agrees that reconciliation of grant expenditures is needed and has reviewed and reconciled all of 2006 grant expenditure data. AIM will review and amend any prior periods if necessary.
- D.2 AIM agrees that all accounting should be done with one accounting system. The spreadsheet now is reconciled and compared directly with the accounting system to ensure accuracy.
- D.3 AIM agrees and has addressed simplification of the chart of accounts to correspond with each grant's actual budget lines.

D.4 AIM agrees and has reconciled and checked each FCTR against the accounting system records, starting with 2006.

Auditors' Response

AIM comments appear responsive to the recommendations.

Accounting System Does Not Compare Actual to Budgeted Costs

AIM's accounting system did not provide for a comparison of actual outlays with budgeted amounts for each award. While AIM's general ledger did account for various types of expenses such as travel or salaries, it did not keep track of funds authorized or remaining on an award-by-award basis. As such, at any moment in time, AIM's accounting system did not show the total costs incurred to-date on an individual award or the available balance of unspent funds.

Also, AIM did not track and report grant expenditures by budget line item either in its accounting system or its spreadsheets, thus reducing the effectiveness of the system and the reports as tools for monitoring grant disbursements. Without a process to compare and review actual expenses to approved award budgets, AIM could not readily identify unusual or unauthorized award activity that may be evident in the financial information. For example, AIM could not readily identify excessive spending rates or reallocations of funds to other budget categories, both of which might suggest a change in the scope of the work that would require a notification to NSF. Further, participant support funds are restricted to participant use only, and thus, must be tracked as a separate cost category, yet these costs were commingled with staff travel costs.

Recommendation

We recommend that NSF Directors of the Division of Grants and Agreements and the Division of Institution and Award Support direct AIM to:

- 5. Ensure that its accounting system provides for a comparison of outlays with budgeted amounts separately for each NSF award;
- 6. Classify expenses in the accounting system as described in the award budget, such as participant support, domestic travel, foreign travel, etc;
- 7. Develop procedures to analyze the award financial information monthly or quarterly and make the requisite clarifications and notifications to NSF;
- 8. Monitor participant support expenses as a budget line item and ensure that these funds are restricted to participant use only unless specific written prior approval is received from the cognizant NSF Program Director.

Auditee's Response

- D.5 AIM agrees and has entered the award budgets into the accounting system. The accounting system module now allows running budget/actual reports to see award and budget category balances.
- D.6 AIM agrees and has matched the award budget expense lines for clear and easy assessment.
- D.7 AIM agrees and has procedures in place to analyze the financial information, as well as to keep the PIs well informed of award balances and spending trends.
- D.8 AIM agrees and has separated this category in each grant to ensure the funds are restricted to participant use only.

Auditors' Response

AIM comments appear responsive to the recommendations.

E. UNSUPPORTED TRAVEL AND PARTICIPANT SUPPORT COSTS

AIM did not support \$23,531 of claimed costs in the sampled non-personnel costs. The transactions lacked adequate documentation for travel and participant support costs and represent 27 percent of the tested \$85,777 of non-personnel award costs. This occurred because AIM does not require that its employees provide or maintain source documentation when submitting expense reports for approval. AIM approved some payments based on estimated costs or requests without actual cost documentation, such as a copy of a charge bill instead of an original receipt.

Further, almost all AIM indirect costs are charged or cost-shared directly to the NSF ARCC award and AIM does not have a negotiated indirect cost rate agreement with NSF. Therefore, the charged for "indirect costs" under award number DMS-0440545 is not supported as an allowable, allocable cost.

Table 5 – Unsupported Costs in Sampled Award Transactions

Award	Description	Date	Amount	Comment
0111966	Misc Travel	12/02/05		No supporting documentation
0244660	Travel	12/31/05		No supporting documentation
0244663	Per Diem	04/06/05		Estimated cost
0440545	Travel	12/31/05		Inadequate documentation
0111966	Stipend	01/06/05		No source documentation
		Subtotal		
0440545	Indirect Costs	08/26/04		No indirect cost rate
		TOTAL		

Recommendation

We recommend that the NSF Directors of the Division of Grants and Agreements and the Division of Institution and Award Support direct AIM to:

- 1. Provide adequate documentation to support the participant support costs or return the funds to NSF and reallocate the charged as indirect costs to direct costs benefiting the award;
- 2. Revise its policies and procedures to ensure that NSF award expenditures are supported with cost documentation and reviewed for allowability and compliance with Federal regulations prior to disbursing award funds.

Auditee's Response

- E.1 AIM agrees to reallocate the indirect costs to direct costs benefiting the award as well as to produce documentation to support the other costs.
- E.2 AIM agrees and has revised its policies and procedures to ensure that documentation requirements are met before awards funds are distributed.

Auditors' Response

AIM comments appear responsive to the recommendations.

American Institute of Mathematics National Science Foundation Award DMS-0111966 Schedule of Award Costs From July 1, 2002 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Personnel			\$1,105,012
Fringe			36,355
Equipment			0
Participant Support			1,500
Travel			4,496
Material, Supplies			0
Other			0
Total Direct Costs	\$3,866,400	\$3,180,255	\$1,147,363
Cost Sharing	\$1,876,080	\$1,846,884	\$389,900

(A) The total representing costs claimed differs from the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005 by \$14,123. Claimed costs reported above were taken directly from the Awardee's books of account.

American Institute of Mathematics National Science Foundation Award DMS-0138597 Schedule of Award Costs From June 1, 2002 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Personnel			\$54,348
Fringe			1,046
Travel			0
Other			0
Total Direct Costs	\$69,000	\$60,938	\$55,394

(A) The total representing costs claimed differs from the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005 by \$8,063. Claimed costs reported above were taken directly from the Awardee's books of account.

American Institute of Mathematics National Science Foundation Award DMS-0244660 Schedule of Award Costs From June 1, 2003 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Personnel			\$415,722
Fringe			23,430
Equipment			0
Travel			914
Participant Support			0
Other			0
Total Direct Costs	\$989,823	\$615,727	\$440,066

(A) The total representing costs claimed differs from the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005 by \$48,190. Claimed costs reported above were taken directly from the Awardee's books of account.

American Institute of Mathematics National Science Foundation Award DMS-0244663 Schedule of Award Costs From September 1, 2003 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Personnel			\$280,144
Fringe			0
Travel			10,380
Participant Support			0
Other			0
Total Direct Costs	\$828,000	\$395,681	\$290,524

(A) The total representing costs claimed differs from the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005 by \$67,501. Claimed costs reported above were taken directly from the Awardee's books of account.

American Institute of Mathematics National Science Foundation Award DMS-0352870 Schedule of Award Costs From January 1, 2004 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Participant Support			\$0
Total Direct Costs			<u>\$0</u>

(A) The total representing costs claimed agrees with the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005. Claimed costs reported above were taken directly from the Awardee's books of account.

American Institute of Mathematics National Science Foundation Award DMS-0440545 Schedule of Award Costs From June 25, 2004 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Personnel			\$34,528
Fringe Benefits			0
Travel			1,000
Material, Supplies			0
Consultant Services			0
Computer Services			0
Other			0
Total Direct Costs	\$93,147	\$44,683	\$35,528
Indirect Costs	\$17,224	\$5,242	\$5,242

(A) The total representing costs claimed differs from the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005 by \$5,198. Claimed costs reported above were taken directly from the Awardee's books of account.

American Institute of Mathematics National Science Foundation Award DMS-0532088 Schedule of Award Costs From July 1, 2005 to December 31, 2005 Unaudited

Cost Category	Approved Budget	(A) Claimed Costs	Questioned Costs
Personnel			\$115,266
Fringe			570
Equipment			0
Travel			0
Participant Support			0
Total Direct Costs	\$229,957	\$169,109	\$115,836

(A) The total representing costs claimed differed from the expenditures reported on the Federal Cash Transactions Report - Federal Share of Net Disbursements as of the quarter ended December 31, 2005 by \$14,170. Claimed costs reported above were taken directly from the Awardee's books of account.

William Harrison Office of Inspector General National Science Foundation 4201 Wilson Blvd. Arlington, Virginia 22230

Subject: Response and Comments to Audit dated March 7, 2007

Dear Mr. Harrison,

AIM would like to thank you for all of your help during this audit process. We appreciate your many recommendations and suggestions. Because of these, AIM has made many changes in our policies and procedures, and we would like to take this opportunity to mention these in response to your report.

1) Executive Summary Bullet Points:

- A) Documentation for employee salaries is being done with the use of monthly Effort Reports starting with January 2006 payroll, B) Also, beginning with January 2006, all new subawardees and independent contractors are required to complete consultant agreements and other paperwork before doing any work for our various grants and programs, and C) proper documentation i.e., receipts and reimbursement forms, are required for all travel and participant support reimbursements. AIM has a written policy explaining this procedure.
- AIM agrees that it is necessary to establish an indirect cost rate and policies
 to distribute properly its actual indirect costs. AIM plans to negotiate our
 indirect cost rate with NSF in the near future.
- There is no question as to the fact that each subawardee or subcontractor did indeed accomplish the tasks that they were hired for. As mentioned above, we have now established mechanisms to properly acquire their services and to document their efforts.
- AIM's accounting system and methodology has undergone many changes since the visit of the NSF audit team. We are working hard at keeping the list of accounts simple and our financial data highly accurate. The only manual spreadsheet that is still in use, for the FCT Reporting, is now reconciled against the automated accounting system to find and correct any errors.
- 1a) Executive Summary Final Paragraph: AIM is working hard at becoming expertly familiar with all of the OMB Circular standards that apply to our Institution (A-110, A-122 and A-133). A member of our staff will be attending the upcoming NSF Regional Grants Conference on March 19-20, 2007. AIM is also trying to invest in our current employees, and provide them with any additional training that they may need in order to correctly carry out their job duties.



of MATHEMATICS

2) A. Internal Control System: Paragraph 3: AIM is working very hard to correct or establish proper policies and procedures that meet the standards and regulations that Institutions of our type are required to operate by.

Regarding job descriptions and personnel files: AIM does have written job descriptions for all of its employees. AIM is working to make sure that those descriptions are as clear, detailed and accurate as possible, and that employee files are complete and up-to-date for all current employees.

Internal Controls, paragraph 4: As noted, AIM's Executive Director and its Board of Trustees have increased their grant monitoring activities by increasing the financial monitoring that the Executive Director does concerning the segregation of duties. This too, is an ongoing process that AIM continues to be mindful of.

- 2a) Internal Controls Bullet Points in Paragraph 5:
- AIM has established Effort Reporting, Consultant Agreements, and written policies for handling all travel and participant support expenses.
- AIM will work with the NSF to establish an indirect cost rate, so that in the
 future all grant charges and cost shared items will properly be disbursed
 among all of AIM's active awards.
- A clarification should be made about the use of the automated accounting system and the manually prepared spreadsheets. The accounting system is used for all entries and tracking. The spreadsheets are only used for the completion of the FCT Reports. Thus, the data contained on the FCT Reports contain the errors, and not the accounting system. Before the start of 2006, there was no reconciliation taking place between the system and the spreadsheets. Rather the spreadsheets were generated strictly by using the data from the cash requests. So if checks and payments for grant expenses were somehow missed or the wrong amounts were requested, the FCT Report then failed to show those discrepancies.
- 2b) Internal Controls paragraph 6-7: As previously touched on, AIM is addressing the need to have staff that is sufficiently trained in Federal award regulations. This is being accomplished by providing all key employees with copies of each OMB circular that applies to our Institution with the requirement that those circulars be read and the standards therein be applied. Also, AIM's Financial Officer has already made arrangements to attend the NSF Regional Grants Conference in March 2007. Any future conferences or seminars that could be of benefit to AIM's staff and the fulfillment of their duties will also be considered.

The detailed financial reports that have been presented to the Board of Trustees on a regular basis since July 2006, have indeed been helpful to AIM's daily operations. Since then, members of the Board have made many recommendations that AIM has already implemented. The Board's continued involvement will be instrumental to AIM's development and

growth. It is the Board's wish that AIM continue to work hard at meeting the Federal standards now and continue to do so in the future.

- 2c) Internal Controls System Recommendations:
 - AIM plans to develop written polices and procedures that will guide AIM's Board of Trustees and its employees in the conduct of our financial and grant compliance duties.
 - Since June 2006, AIM has current and complete personnel files for all of its active employees. AIM does have written job descriptions already in place and we are working on improving the clarity and detail for the financial and grant management positions.
 - Ensuring that AIM personnel are trained and knowledgeable has been and will continue to be, very important to our operations. AIM's key employees will be free to attend at least one training/compliance seminar per year. Also, key staff will be required to keep current with all OMB Circular Amendments and changes, as well as the Grants Policy Manual.
- 3) B. Internal Controls Over the Distribution of Direct and Indirect Costs

 Paragraphs 1 through 5: Beginning with January 2006, AIM has signed
 after-the-fact activity reports for each month that an employee or contractor
 receives a direct payment from AIM. These reports account for 100% of
 activity and correspond to at least one pay period. Salaries for employees
 that are used in meeting cost-share requirements are also being tracked in
 the same manner.
 - 3a) AIM Does Not Have an Indirect Cost Rate: All activities, even the few that have no direct relation to a specific award, could be regarded as supporting ARCC. The ARCC grant is an Institute Award and all outreach programs and Fellowships awarded by AIM can be regarded as activities that support or benefit ARCC and other grant awards. The same can be said of the small percentage of time and effort that AIM staff may spend on these non-funded activities.
 - 3b) Section B Recommendations:
 - AIM agrees that there was a lack of documentation to support claimed salary costs.
 - AIM agrees that there was a need to establish a process for documenting and certifying the activities of AIM's salaried employees. Starting in January 2006, all salaried employees are required to complete an effort report for each month that they receive pay. This Effort report contains a description of the duties/tasks that they perform with their time and effort distributed among those tasks equaling 100%. These are signed and submitted each month. So none are overlooked, a checklist has been created to mark off each report that is received for each salaried employee. The current form may need to also include a mechanism to calculate direct versus indirect costs, once we have negotiated an indirect cost rate with the NSF.
 - AIM concurs that there is a need to develop and implement written policies and procedures for the classification, recording, and reporting of

- direct and indirect costs in the accounting system as regards to any salary, equipment, and supplies that this may apply to. AIM is currently in the process of developing and implementing the polices and procedures that are needed to do that.
- AIM agrees that we need to establish an indirect cost rate, so we will
 develop and submit an annual indirect cost rate proposal to NSF.
- 4) C. Monitoring of Subaward and Independent Contractor Costs: There is no question that the subawardees and subcontractors of AIM did indeed perform the tasks and work that they were hired for.
 - 4b) Section C Recommendations:
 - AIM agrees that there was improper documentation to support some subawards and contractor cost. However, AIM currently has an established subawardee/independent contractor acquiring and monitoring system.
 - AIM agrees that there was a need to establish policies and procedures for obtaining services with subrecipients, contractors, and students. Beginning in January 2006, all new subrecipients or subawardees are required to complete a Consulting Agreement with AIM and our representative for each project. The terms and rate of pay are reviewed for fair market value before acceptance by AIM. They are to complete the contract before work begins and arrangements are then made for payment either through another Institute or to the individual directly. Invoices for services are submitted to AIM before payment is made. Depending on the payment arrangements, they then submit either a monthly (if paid monthly) or a final report upon completion of their contract.
 - AIM agrees that is was necessary to develop and implement a subward monitoring system with policies and controls. AIM has already developed and implemented a subawardee monitoring system with control processes to document, administer and monitor subawards. These will be reviewed to make sure that all requirements for working with and paying subawardees and consultants are in compliance with grant policies and OMB circulars.
- 5) D. Award Cost Claimed; Accounting System to Provide Comparison of Budgeted to Actual Costs: AIM is able to ensure accurate accounting and reporting of its NSF awards. The amounts provided for the NSF audit (Column C on Table 4) were *un-audited* amounts produced from the automated accounting system that were not intended to be used for comparison against previous A-133 audit reports. Several spreadsheets of data have been provided to the NSF audit team since their visit, to explain why those numbers were seemingly off. AIM is confident that our A-133 Audit figures are correct. That being the case, AIM feels that there are no discrepancies.

 5b) Section D Recommendations:

- AIM agrees that a reconciliation of grant expenditures is needed for each
 of its active awards. AIM has already reviewed and reconciled all of
 2006 grant expenditure data. AIM will also review, reconcile and if
 necessary amend any prior periods.
- AIM agrees that all accounting should be done with the use of one
 accounting system. AIM does maintain and utilize one accounting
 system for recording, processing, and summarizing our financial data.
 Additional methods are only used for compiling data for the FCT
 Reports. The spreadsheet is now being reconciled and compared directly
 with the accounting system to assure its accuracy.
- AIM agrees that it is important to have a simple chart of accounts.
 Simplification of the chart of accounts has already been addressed with the removal or combining of accounts to better correspond with the actual budget lines for each grant. AIM will continue to monitor this in the future to be sure that the chart of accounts remains as simple and straightforward as possible.
- AIM agrees that timely reviews need to be performed for the award expenses and that FCTR is supported by the accounting system. Each FCTR, starting with 2006, is now reconciled and checked against the accounting system records.

5c) Accounting System to Compare Actual to Budgeted Costs: AIM has inputted budgets for each of our active awards for 2006 and 2007 that correspond to the to the grant budget lines as outlines for each grant. This allows for proper tracking and comparisons for budgeted versus actual expenses. Running budget/actual reports allows AIM to see any balance of unspent funds, proper distribution of expenses to the right categories and to help identify any relocations of funds, excessive spending or change in the scope of work for each award separately.

Recommendations:

- AIM agrees that it is important to be able to compare budget versus
 expenses amounts separately for each NSF award. The Budget/Actual
 feature of our accounting system is being used to monitor each grant
 separately. The approved NSF budgets have been entered into that
 module of the accounting system, so that budget amounts versus
 expensed amounts can be tracked and compared for each grant.
- AIM agrees that proper classification of expenses as described in the
 award budget is important for proper tracking and budgeting of each
 award. AIM's accounting systems budget and expense account lines
 match the descriptions in the award budget for clear and easy assessment
 that is carried out on an ongoing basis.
- AIM agrees that analysis of the award financials is necessary.
 Procedures are already in place to analyze the financial information for each award. Budget/Actual reports are used on a quarterly basis to review spending and to verify proper allocation, as well as to keep the PI's for each grant well informed of balances and spending trends.

- AIM agrees that it is proper and necessary to distinguish participant support from other award expenses. Participant Support is a budget line item and a separate expense line item for each grant to ensure that these funds are restricted to participant use only.
- 6) E. Travel and Participant Support Costs: AIM has improved its requirements and administration for travel and participant costs. AIM has a written policy for the documentation and payment of these costs.
 - 6a) Section E Recommendations:
 - AIM agrees that proper documentation is necessary and required for all award costs. AIM agrees to reallocate the charged as indirect costs to direct costs to benefit the award. AIM has the documentation for that was claimed as unsupported and we are in process of gathering the necessary documents for the remaining
 - AIM agrees that it is essential to have policies and procedure in place
 that ensure that NSF award expenditures are supported with proper
 documentation and reviewed for allowability and compliance with
 Federal regulations. AIM has revised its policies and procedures to
 ensure that NSF award expenses meet those standards before
 distributing award funds.

Again, AIM thanks you for your suggestions and recommendations. We look forward to discussing these items further with you during our scheduled conference call.

