2002 SUMMER RESEARCH PROGRAM

A. Summary of the Summer Research Program

The 11th annual Physics Department Summer Research Program was held from June 1, 2002 through July 28, 2002. A total of 20 minority undergraduate students representing five universities participated in the nine week summer program. The students conducted research in a wide variety of research topics ranging from the materials sciences to the plasma sciences. All of the research personnel in the CPMD contributed to the success of the summer program by incorporating the summer students into their research activities.

This year's summer program has proven to be a success in several areas. First, we have been able to bring a diverse group of students to Fisk University and the CPMD for research training without significant perturbation to the research activities of the Center. The results of the student survey indicate that the students have judged the program to be successful. Additionally, three seniors who participated in the summer program have already been accepted to Fisk University for graduate studies.

B. Support for the Summer Research Program

The Physics Summer Research Program received support from the following sources:

1. NSF Research Experience for Undergraduates (REU)
2. NSF Alliance for Minority Participation (AMP)
3. NASA - Fisk University Center for Photonic Materials and Devices

C. Summer Program Activities

The specific activities of the Summer Program participants were: (1) participation in the summer physics course; (2) completion of research in an assigned laboratory; (3) attendance at seminars and lectures presented by the faculty and research staff; and (4) preparation and delivery of oral, written and poster presentations based upon their research. A description of each the students' activity is given below. The typical weekly schedule is given in Table 1.

<u>Summer Physics Course:</u>
Two courses, one for advanced undergraduates (juniors and seniors) and one for beginning undergraduates (freshmen and sophomores), that focused on strengthening the mathematical and physics backgrounds of the student participants. In the class for beginning students, the summer course focused on kinematics and the application of calculus-based techniques to solve physics problems. In the class for advanced students, the course focused on a review of topics ranging from classical mechanics to electromagnetism. The physics courses were held daily.

Research Activities:

Each day, the students were expected to spend up to six hours in the laboratory. During the first two weeks, the students were expected to spend their time reading texts and journal articles to familiarize themselves with the research topics in the laboratory. Concurrently, students were introduced to general laboratory skills and the specific hardware in their laboratories. The students conducted their research in pairs, overseen by a member of the research staff.

Seminars:

Weekly scientific seminars were presented by the members of the Fisk Physics Department and CPMD to the students. These seminars introduced the students to all of the research activities in the CPMD.

Presentations:

The summer program not only focused on training students how to conduct research, but also how to make scientific presentations. The students were split into two groups that made presentations on alternate weeks during the summer program (i.e., Group 1 students presented on weeks 2, 4, and 6 and Group 2 students presented on weeks 3, 5, and 7). The weekly presentations consisted of each student making a five minute oral presentation that summarized their research activities over the preceding two weeks. In the final week of the program, the students made ten minute oral presentations that summarized their activities for the summer, wrote a five to seven page research paper, and made poster presentations of their work.

Table 1: Weekly Schedule for Physics Summer Research Program

	Mon.	Tues.	Wed.	Thurs.	Fri.
8:00 AM	CLASS	CLASS	CLASS	CLASS	CLASS
8:30 AM	|	|	|	|	|
9:00 AM	|	|	|	|	|
9:30 AM	LAB	LAB	LAB	LAB	LAB
10:00 AM	|	|	|	|	|
10:30 AM	|	|	|	|	|
11:00 AM	|	|	|	|	|
11:30 AM	|	|	|	|	|
12:00 PM	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
12:30 PM	|	|	|	|	|
1:00 PM	LAB	LAB	LAB	LAB	LAB
1:30 PM	|	|	|	|	|
2:00 PM	|	|	|	|	|
2:30 PM	|	|	|	|	|
3:00 PM	|	|	|	|	|
3:30 PM	|	|	|	|	|
4:00 PM	|	Faculty	|	|	Student
4:30 PM	|	Seminars	|	|	Seminars
5:00 PM	|		|	|	

D. Student Project Titles

1.
2.
3.
4.
5.
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10.

E. Student Participants in the 2000 Physics Summer Research Program

Name	Year	University	Mentor	Group No.
Priscilla T. Alexander		Fisk	Burger	2
Geneva D. Bosell		Fisk	Burger	2
Elizabeth E. Brewer			Burger	2
Adrienne T. Brown			Collins	4
Derrick G. Demmons		Fisk	Henderson	1
Wilbert J. Fletcher			Henderson	1
Amanda Ann Henry			McCarroll	4
Keatha W. Holmes			Watson	4
JoAnn N. Jones			Burger	2
Krystal P. McKinney			Morgan	3
Vanea R. Pharr			Collins	4
Jonathan M. Reynolds		Fisk	Burger	2
Richard N. Thigpen		Fisk	Morgan	3
Shantia A. White			Morgan	3
Azieb G. Abebe		Fisk	Henderson	1
Bilikiss O. Adebiyi		Fisk	Burger	2
Terrel O. Humes			Henderson	1
Fope A. Onafowokan		Fisk	Morgan	3
Bradley J. Paynter		Trevecca	Watson	4
Rochanda Mitchell		Fisk	McCarroll	4

F. Statistics on Student Participants

Student Distribution by Sex
Female Participants: 14
Male Participants: 6

Student Distribution by Academic Standing (i.e., class level)
Freshman:
Sophomore:
Junior:
Senior:

Student Distribution by University
Fisk University, Nashville, TN
Florida A&M, Tallahassee, FL
Trevecca Nazarene University, Nashville, TN

Summer Program Coordinators
Bryan Kent Wallace
Director of Physics Laboratory

Kourosh Mohammadpour, M.S.
Research Assistant, Physics Department

W. Eugene Collins, Ph.D. Coordinator, Summer Research Program
Professor, Physics Department
Assistant Director, CPMD