Project # : 631-5241
Center #: PS060-0A0

Contracts #: 1
Prime #: 

Subprojects #: N
Main project #: 

Project unit: PHYSICS
Project director(s): 

Sponsor/division names: 
Sponsor/division codes: 

Award period: 

Sponsor amount
Contract value 1,000.00
Funded 1,000.00
Cost sharing amount 0.00

Does subcontracting plan apply #: N

PROJECT ADMINISTRATION DATA

OCA contact: 894-4820
Sponsor technical contact
(000)000-0000

Security class (U,C,S,TS): 
Defense priority rating : N/A
Equipment title vests with: Sponsor
NONE PROPOSED

Administrative comments - 
NOTICE OF PROJECT CLOSEOUT

Date  7/13/89

Object No.  G-41-524  Center No.  P5060-0A0

Object Director  M. M. Graff  School/Lab  Physics

Sponsor  American Chemical Society

Contract/Grant No.  Letter dtd. 4/11/88  GTRC  XX  GIT

Time Contract No.  N/A

Title  ACS/Project Seed

Effective Completion Date  9/30/88  (Performance)  9/30/88  (Reports)

Closeout Actions Required:

X  None

X  Final Invoice or Copy of Last Invoice

X  Final Report of Inventions and/or Subcontracts

X  Government Property Inventory & Related Certificate

X  Classified Material Certificate

X  Release and Assignment

X  Other

Includes Subproject No(s).  

Project Under Main Project No.  

Continued by Project No.  

Distribution:

X  Project Director

X  Administrative Network

X  Accounting

X  Procurement/GTRI Supply Services

X  Research Property Management

X  Research Security Services

GTRC

Project File

Contract Support Division (OCA)

Other
Two high school students, Twanna Canty and Kerda Martin, worked in this laboratory for ten weeks during the summer of 1988. Both are rising seniors following math/science tracks in Atlanta public schools. Each was assigned to work with an undergraduate (rising senior) research assistant on a specific ongoing project. As the summer progressed, the scope of activities broadened beyond a single project, although the primary work activity remained as originally planned. The students learned basic skills such as vacuum techniques, soldering, drafting and design, and computer programming in pursuing their projects. They also learned basic principles about molecules and chemical reactions.

Student stipends were provided by ACS/Project SEED ($1700) and by the Georgia Tech Foundation ($300). The Georgia Tech Foundation also provided $100 to each student for transportation expenses.

**Primary research activities:**

Canty worked on the design and assembly of vacuum pumping and exhaust lines for a flowing afterglow ion source. She also contacted vendors of specialized vacuum equipment across the country and made comparative analyses of a variety of products.

Martin worked on a parahydrogen synthesis and analysis system, including assembling and leak-testing vacuum systems. She calculated the theoretical Raman spectrum for $\text{H}_2$ and $\text{N}_2$ for use in assigning observed spectra and presented these results at a group meeting.

**The laboratory environment:**

The laboratory environment is busy: six undergraduate and graduate students working 10-40 hours per week, each with relatively free rein on his/her project. The SEED students were in daily contact with the other students with questions, discussions, and research project updates. More comprehensive background on various laboratory projects was given in formal presentations at occasional group meetings.
Communication:
I developed a close relationship with both students. Topics of our extended conversations, in approximate order of occurrence, included: professional training, employment prospects, job security, typical salaries (C&E News articles were invaluable), race relations, family budgets, educational options and strategies, achievement, motivation, teen pregnancies, home life, personal histories, independence, and interpersonal relationships.

Motivation:
The most difficult aspect of directing Project SEED was (predictably) keeping the students active and motivated. They were enthusiastic about their projects and understood what was involved, but enthusiasm and understanding did not always translate into action. Fear of mistakes was the major limitation. By the end of the summer their confidence level had increased noticeably.

SAT scores:
Early in the summer I learned that both students have made unacceptably low scores on the SAT. Since both students are intelligent and perform reasonably well in high school, I assume from discussions that they are simply not testing well and are running into time problems. Three SAT preparation workbooks were purchased and donated to the lab. The students have checked the books out to prepare for the tests during the fall. The SAT project also provided a filler between laboratory activities: they reached for the books when they had an hour to spare. One student (Canty) has signed up for an SAT workshop offered at a local college.

Career counseling:
Georgia Tech has an excellent career counseling center, and both students made good use of this service. They met with counselors and underwent extensive testing (e.g. the SIGI test, the Strong-Campbell Vocational Interest test) to determine aptitudes, preferences, and relative merits for various career options. This was one of the most successful aspects of the summer experience. They have now considered a wide variety of career options, have come to question their career goals as originally stated (pediatrician and pharmacist), and have analyzed what they want out of a career.
Work ethic and professionalism:
A large effort went into teaching professionalism (to undergraduates as well!). In particular, we stressed the following points:
(1) Reliability and responsibility are important traits in the workplace. Trust is difficult to replace.
(2) You can always find a productive activity that will push the project further toward completion. Self-motivation distinguishes a professional from an hourly worker.
(3) Cooperation is essential. Keep your coworkers apprised of your plans and activities so that they may budget their time accordingly. An excellent working relationship does not require a close personal relationship.
Varying amounts of progress were achieved on all of these fronts.

Interactions with other researchers:
The students worked very well with all other members of the group (undergraduates, grad students, professor). They felt free to solicit advice from all group members.

Publicity:
A press release (enclosed) has been sent to the Georgia Tech News Bureau. The students participated in taping a video on laboratory instruction that will be shown to incoming faculty and graduate students. The students are scheduled to appear with me on a half-hour segment of a local television show, "Community". (I will provide ACS/Project SEED a videotape as soon as possible.) Other photos are enclosed for your use.

cc: Norman Johnson
    Jim Stevenson
    Warren Heemann
    Edward Thomas
    Bill Sayle
    David Welch
    Barbara Winship
    Jeannette Carter
    Charlene Everette
    Matt Gedney
    Kelly Roberts
    Don Bratcher
Press release
Project SEED (Summer Educational Experience for the Disadvantaged)

Project SEED is the American Chemical Society's social action and education program that seeks to overcome some of the obstacles that have traditionally excluded economically disadvantaged students from preparation for and entry into professional careers. The ACS program is celebrating its 20th anniversary. Professor Margaret Graff, Physics, directed a Project SEED program this summer for two local students, Twanna Canty of Mays High School and Kerda Martin of Turner High School. Support stipends were provided by the American Chemical Society and the Georgia Tech Foundation. Professor William Sayle located qualified students through the SECME outreach program to Georgia high schools.

By spending the summer in a research environment, the students were able to take a close look at the professional world of science and technology. They were enthusiastic participants in a variety of chemical physics research projects involving the reaction of fast neutral radicals with rotationally state-specific hydrogen. Each SEED student worked closely with Graff and with undergraduate and graduate students, learning various laboratory skills, vacuum techniques, simple computer programming, and basic ideas of molecular physics. The program also provided extensive career and educational counseling. Through tests and interviews conducted by the Career Planning Center, Martin and Canty examined a variety of career options matched to their tastes and talents. They explored educational opportunities and strategies in discussions with Graff and other Tech faculty.

The students' summer experience reinforces connections, already established by the SECME program, between Tech and local high schools. These contacts serve to make minority students more aware of Tech as an attractive choice for higher education. Professor Graff is eager to continue Project SEED in future years.