

FINAL TECHNICAL REPORT

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1998 HU CFRT SUMMER FUSION HIGH SCHOOL WORKSHOP

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HU CFRT Summer 1998 High School Fusion Science Workshop

The center conducted its third High School Summer Fusion Science Workshop in Summer 1998. The center had only three faculty mentors available only for a part of Summer 1998. The center accepted four scholars in this workshop. Prof. Halima Ali coordinated this workshop. Each student was assigned to a research mentor according to the student's interest in a specific research area and problem.

Table 1: Participants of the 1998 Summer Fusion Science Research Workshop, their race and gender, the high school and the funding agency

STUDENT	RACE/GENDER	HIGH SCHOOL	FUNDING AGENCY
Reshama Saralkar	Asian-American Female	Wtkins Mill High School, Gaithersburg, Maryland	NASA SHARP Plus NASA
Violeta Esparaza	Hispanic Female	Arvin High School, Arvin, california	NASA SHARP Plus NASA
Melanie Camacho	African-American Female	St. Croix Educational Complex, Croix, US Virgin Islands	NASA SHARP Plus NASA
Cedric White	African-American Male	Gwynn Park High School, Accokeek, Maryland	NASA SHARP Plus NASA

In the workshop in the center, the students received instructions and training in the basics of energy, plasma and fusion sciences. They also received one-on-one instructions and training by their mentors to further their understanding of the subject and to introduce to relevant concepts such as magnetic confinement fusion, tokamaks, divertors and area-preserving maps.

Table 2: Participants of the 1998 Summer Fusion Science Research High School Workshop and their research projects

STUDENT	FACULTY MENTORS	RESEARCH PROJECT
Reshama Saralkar	Dr. A Punjabi	Distance between Neighboring Field lines in a Tokamak
Violeta Esparaza	Dr. H. Ali	Self Similarity in the Simple Map
Melanie Camacho	Dr. N. jalufka	Electromagnetic Radiation in Fusion Plasmas
Cedric White		

The students presented their research work and results before their NASA SharpPlus peers and mentors. The presentations were exceptionally well prepared and presented and very well recieved. Students submitted abstracts to the Undergraduate/Education/ Outreach poster session of the 1998 meeting of the APS DPP. Due to lack of funding, they were unable to participate the meeting. Their papers were presented by mentors and were very well received at the APS DPP meeting in New Orleans.

Table 3: The participants of the 1998 Fusion Science Research Summer Workshop and the titles of the Abstracts Submitted to 1998 APS DPP meeting

STUDENT	CONTRIBUTED PAPER
Reshama Saralkar and Cedric White	Understanding the Chaotic Behavior of Field Lines using the Simple Map R Saralkar, C White, H Ali and A Punjabi <i>Bull Am Phys Soc</i> , 43 , 1741 (1998)
Violeta Esparaza	The Role of Electromagnetic radiation in Tokamak Divertors V Esparaza <i>Bull Am Phys Soc</i> , 43 , 1742 (1998)
Melanie Camacho	Electromagnetic radiation Emitted by a Plasma and its Use as a Diagnostic Tool M Camacho <i>Bull Am Phys Soc</i> , 43 , 1742 (1998)

In February 1999, Cedric White and Reshama Saralkar travelled to Hampton and presented the papers *Self-similarity in the Simple Map* (Cedric White and Halima Ali) and *Measuring Distance between Neighboring Field Lines in a Tokamak* (Reshama Saralkar and Alkesh Punjabi) at the Hampton University School of Science Fourth Annual Student Research Symposium. Both papers won the award for the **Best High School Student Research Papers**. Cedric and Reshama also won **prizes of \$ 75 each** for their papers. Cedric is now a junior at Oxon High School in Maryland. He wants to come to Hampton as an undergraduate and continue working with HU CFRT. In April, Tiffany Fisher - an undergraduate math major at Hampton and NASA SharpPlus scholar who participated in the 1996 HU CFRT Summer Fusion High School Workshop - presented the paper *Symmetric Simple Map with Low MN Perturbations* (Tiffany Fisher, Arun Verma and Alkesh Punjabi) at the DC/MD/VA Section Meeting of Mathematical Association of America and won the award for the **Best Undergraduate Research Paper**.

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Prepared by Dr. Halima Ali

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