
LLE's Summer High School Research Program

During the summer of 1998, 11 students from Rochester-area high schools participated in the Laboratory for Laser Energetics' Summer High School Research Program. The goal of this program is to excite a group of high school students about careers in the areas of science and technology by exposing them to research in a state-of-the-art environment. Too often, students are exposed to "research" only through classroom laboratories, which have prescribed procedures and predictable results. In LLE's summer program, the students experience all of the trials, tribulations, and rewards of scientific research. By participating in research in a real environment, the students often become more excited about careers in science and technology. In addition, LLE gains from the contributions of the many highly talented students who are attracted to the program.

The students spent most of their time working on their individual research projects with members of LLE's technical staff. The projects were related to current research activities at LLE and covered a broad range of areas of interest including optics, spectroscopy, chemistry, diagnostic development, and materials science (see Table 76.III).

The students attended weekly seminars on technical topics associated with LLE's research. Topics this year included lasers, fusion, holography, nonlinear optics, global warming, and scientific ethics. The students also received safety training, learned how to give scientific presentations, and were introduced to LLE's resources, especially the computational facilities.

The program culminated with the High School Student Summer Research Symposium on 26 August at which the students presented the results of their research to an audience including parents, teachers, and LLE staff. The students also prepared written reports, which were bound into a perma-

nent record of their work. These reports are available by contacting LLE.

Ninety-three high school students have participated in the program since it began in 1989. The students this year were selected from approximately 60 applicants.

In 1997, LLE added a new component to its high school outreach activities: an annual award to an Inspirational Science Teacher. This award honors teachers who have inspired High School Program participants in the areas of science, mathematics, and technology and includes a \$1000 cash prize. Teachers are nominated by alumni of the High School Program. The 1998 award was presented at the symposium to Mr. David Crane, a chemistry teacher from Greece Arcadia High School. Mr. Crane was nominated by Robert Dick, a participant in the 1991 Program. Mr. Dick wrote that Mr. Crane's "academic competence, curiosity, and enthusiasm toward teaching allow him to motivate students who would, otherwise, fall through the cracks. Mr. Crane attracted students who wouldn't typically take difficult science courses." He added, "Mr. Crane would stay after normal school hours to host an informal lecture and lab, just to satisfy our curiosity."

Ms. Donna Essegian, principal of Greece Arcadia High School, added, "He is dedicated to his students. ...He is a continuous learner himself and has served this way as a model for students that science is an evolving subject." Mr. Terry Kessler, an LLE scientist who was taught by Mr. Crane, remembered, "The science teacher tandem at Greece Arcadia High School, consisting of Mr. David Crane (chemistry) and Mr. Claude Meyers (physics), has encouraged many of us to follow our curiosities in science and to pursue life-long learning."

Table 76.III: High School Students and Projects—Summer 1998.

Student	High School	Supervisor	Project
Steven Corsello	Pittsford Mendon	K. Marshall	Computer-Aided Design and Modeling of Nickeldithiolene Near-IR Dyes
Peter Grossman	Wilson Magnet	S. Craxton	Group Velocity Effects in Broadband Frequency Conversion on OMEGA
Joshua Hubregsen	Pittsford Sutherland	S. Jacobs	A Study of Material Removal During Magnetorheological Finishing (MRF)
Neil Jain	Pittsford Sutherland	M. Guardalben	Phase-Shifting Algorithms for Nonlinear and Spatially Nonuniform Phase Shifts
Leslie Lai	Pittsford Mendon	M. Wittman	The Use of Design-of-Experiments Methodology to Optimize Polymer Capsule Fabrication
Irene Lippa	Byron-Bergen	K. Marshall	Synthesis of Nickeldithiolene Dyes and Their Solubility in a Nematic Liquid Crystal Host
Phillip Ostromogolsky	Brighton	F. Marshall	Investigation of X-Ray Diffraction Properties of a Synthetic Multilayer
Michael Schubmehl	The Harley School	R. Epstein	An Analysis of the Uncertainty in Temperature and Density Estimates from Fitting Model Spectra to Data
Joshua Silbermann	Penfield	P. Jaanimagi	Automated CCD Camera Characterization
Abigail Stern	The Harley School	J. Knauer	Design and Testing of a Compact X-Ray Diode
Amy Turner	Churchville-Chili	S. Craxton	Ray Tracing Through the Liquid Crystal Point Diffraction Interferometer (LCPDI)