

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Using a plasma physics experiment to expand student understanding of the index of refraction¹ JOE WISE, New Roads High School, Santa Monica, WALTER GEKELMAN, UCLA, ROBERT BAKER, PATRICK PRIBYL, UCLA — The Los Angeles Physics Alliance Group (LAPTAG) Plasma Lab has met regularly at UCLA for the past 9 years. High school students have been involved in the construction of probes, amplifiers, antennae, machine shop use, printed circuit construction, experimental design, and scientific programming for the analysis of data. We describe a unique opportunity for high school students to participate in the process of science. Using plasma physics as an educational “hook,” students are engaged through a series of experiments, lectures, presentations, and group discussions. The outcome is that students gain a deeper understanding of the scientific method and in this case, the concepts of index of refraction and its effects on wave propagation. For example, students comprehend such advanced topics as dispersion, k-space, plasma properties, and wave group and phase velocities. This engagement supports efforts to improve STEM career choices by exposing high school students to challenging and interesting experiences in preparation for advanced study.

¹This work was done as part of the Basic Plasma Science Facility supported by DOE and NSF.

Walter Gekelman
UCLA

Date submitted: 13 Oct 2009

Electronic form version 1.4