Adventures in Nanoscale Science Pique the Interest of Young Minds
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SCIENCE ENCHANTS SUMMER CAMPERS
Program with magical theme explores chemistry, fosters scientific literacy

In collaboration with the Action Potential Science Experience (APSE) and NSF-sponsored NIRT teams, the Penn State MRSEC has developed and implemented new nanoscience modules for young scientists taking part in summer camps. Students entering grades four to eight engaged in hands-on activities that enabled them to grasp the concept of scale, as well as the techniques scientists use to detect objects on the nanoscale. Macroscale models of atomic force microscopes were designed and engineered to provide students with an easily manipulated apparatus that could be used to detect hidden objects (nanowires) beneath a fabricated surface. Once the "nanowires" were mapped, camp participants designed masks to connect them as they learned about lithography, conductivity and fabrication. Other modules implemented in the APSE camps, and other camps affiliated with our Center, include the construction of solar cars, zeolite cages and ferrofluids.

Thirty-three (33) minority students participated in the APSE programs in 2005, and 13 of them received scholarships from the Penn State MRSEC to attend the science experience of their choice. Over thirty Penn State science, education, and engineering majors (including REU students affiliated with the MRSEC and NSF investigators) participated in the APSE programs as service learners and acted as role models, or mentors, to the K-12 students. In 2005, our faculty, the APSE camps, and these modules were highlighted in two national publications: *Newsweek* and *Chemical & Engineering News*. In 2005, the APSE camps served over 550 young people drawn locally, nationally and abroad (Korea and France), and MRSEC modules have also been implemented at secondary sites through APSE's partnership with the Infotonics Technology Center in Canandiagua, NY.

ENLIGHTENMENT Connor Speidel, wearing a wizard's hat for good behavior, peers through a pair of polarizing light filters.