

LIGHTING THE WAY

Penn State MRSEC



Originally conceived by Penn State researcher Venkat Gopalan, the fiber workshop enables participants to send their voices over light waves.



Voices over light WISE workshop on fiber optic technology

Outreach

Bringing together research faculty, graduate students and outreach coordinators, the Penn State MRSEC has developed a hands-on educational exploration into the world of fiber optic technology. This two-hour workshop module was presented to 11th and 12th grade participants in the Women in the Sciences and Engineering program whose primary mission is to enhance the entry and success of women in the STEM disciplines.

As WISE participants investigated the basic scientific principles and everyday applications of fiber optic technology, the wide-

spread use of optical fibers in telecommunications brought a strong sense of immediacy to the activities. Working in small groups, the young women discovered how fiber optic materials guide light with low loss. Using transmitters and receivers, the students discovered how to convert a light signal into sound and information, "listening" to several light sources from the visible to the infrared. The students also used oscilloscopes to see the wave character of light, defining the wavelength and frequency of these waves in relation to color. In the final minutes of the workshop,

the students transmitted their own voice across the room.

The 2006 WISE camp engaged 31 women from nine states, eleven from underrepresented groups and seven receiving need-based scholarships to attend the workshop. Fourteen female graduate students participated in the camp as small-group leaders. These graduate students shared their experiences and career goals and offered advice to the future scientists.

