



*Applied Physics & OSA  
Optics Seminar*

# Wrapping Light Around a Hair

## Prof. Eric Mazur

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Can light be guided by a fiber whose diameter is much smaller than the wavelength of the light? Can we mold the flow of light on the micrometer scale so it wraps, say, around a hair? Until recently the answer to these questions was 'no'. We developed a technique for drawing long, free-standing silica wires with diameters down to 50 nm that have a surface smoothness at the atomic level and a high uniformity of diameter. Light can be launched into these silica nanowires by optical evanescent coupling and the wires allow low-loss single-mode operation. They can be bent sharply, making it possible to control the propagation of light around micrometer-sized corners. The nanowires have applications in microphotonic devices for optical processing and environmental sensing.

### ***Biography:***

Eric Mazur holds a triple appointment as Harvard College Professor, Gordon McKay Professor of Applied Physics, and Professor of Physics at Harvard University. After obtaining a Ph.D. degree in experimental physics at the University of Leiden in the Netherlands, Dr. Mazur came to Harvard University in 1982. In 1984 he joined the faculty and obtained tenure six years later. Dr. Mazur has made important contributions to spectroscopy, light scattering, and studies of electronic and structural events in solids that occur on the femtosecond time scale. Dr. Mazur is also interested in education, science policy, outreach, and the public perception of science. To this end, Dr. Mazur devotes part of his research group's effort to education research and finding verifiable ways to improve science education.

Dr. Mazur has served on numerous committees and councils, including advisory and visiting committees for the National Science Foundation, has chaired and organized national and international scientific conferences, and presented for the Presidential Committee of Advisors on Science and Technology. He serves as consultant to industry in the electronics and telecommunications industry.

Detailed biography at: <http://mazur-www.harvard.edu/emdetails>

***Thursday, March 10, 2005.***

***4:00pm-5:00pm.***

***Steele 102***

Refreshments will be available.

