Fall 2006 SEMINAR SERIES

F21C Bioprocessing & Biosensing Center

• DIVISION OF FOOD SYSTEMS & BIOENGINEERING •

PRESENTER: **Dr. Misha Sumetsky**
OFS Laboratories

TITLE: **Optical micro- and nanofibers for sensing applications**

ABSTRACT:

An optical microfiber (MF) is usually fabricated by drawing a conventional optical fiber down to the diameter of ~ 1 micron. A MF with the diameter significantly less than one micron is often called a nanofiber. The MFs considered in this talk represent the waists of biconical fiber tapers rather than the sharply tapered fibers, which are conventionally used in scanning near field optical microscopes. The transmission characteristics of these MFs vary due to changes in temperature, external radiation, mechanical vibration, concentration of chemical/biological species and microparticles near the MF surface, etc. For this reason, a MF can be used as a very sensitive probe of physical, chemical, and biological changes of the medium adjacent to a MF. The theory, methods of fabrication, and potential applications of optical MF/nanofibers as sensors are reviewed.

Misha Sumetsky graduated from St. Petersburg State University, Russia (1975) and has Ph.D. (1979) and D.Sc. (1989) degrees from the same University. From 1979 he worked at the Physics Department of St. Petersburg University of Telecommunications and from 1995 at the Bell Labs, Lucent Technologies. After transition of the Optical Fiber Research Department of Bell Labs into the OFS Labs of the Furukawa Electric Company in 2001, he joined the OFS Labs. Dr. Sumetsky has more than 100 publications in optics and quantum mechanics. His present research interests are in optics of microfibers and nanofibers.

DATE • TIME • LOCATION:

Tuesday, October 31, 4:00pm
Ag Eng Bldg 105 • Refreshments