

# Winter 2007 SEMINAR SERIES

## F21C Bioprocessing & Biosensing Center

• DIVISION OF FOOD SYSTEMS & BIOENGINEERING •

**PRESENTER:**

**Dr. Xudong (Sherman) Fan**

Assistant Professor, Biological Engineering Department  
University of Missouri - Columbia

**TITLE:**

**Liquid core optical ring resonator sensors: the interface between photonics and fluidics**

**ABSTRACT:**

Our lab has developed liquid core optical ring resonator (LCORR) technology for bio/chemical sensing applications. The LCORR can be made by pulling a glass capillary down to approximately 100- $\mu\text{m}$  in outer diameter. The wall of the LCORR forms a ring resonator, and therefore, the whispering gallery mode (WGM) can be supported. The thickness of the LCORR wall is only a few microns. As a result, the WGM has sufficient evanescent field in the LCORR core and is capable of detecting any changes on or in proximity of the LCORR interior surface. The LCORR combines microfluidics with state-of-the-art photonics technology. It takes advantage of excellent liquid handling capability of capillaries, and high sensitivity and small sample consumption of optical ring resonators. In this seminar, I will discuss the detailed optical properties of the LCORR and show the results that our lab has achieved in bio/chemical sensing applications.

**BIOGRAPHY:**

Xudong Fan obtained Ph. D. in physics from Oregon Center for Optics, University of Oregon in 2000. He joined 3M immediately after graduation. During 2000 and 2004, he led a group at 3M-Austin on fiber optics and optical biosensor development. In August 2004, he joined the Biological Engineering Department at the University of Missouri at Columbia as an assistant professor. He is now leading a team to develop photonic bio/chemical sensors and nanobiosensors. For more information: <http://web.missouri.edu/~fanxud/>

**DATE • TIME • LOCATION:**

**Tuesday, February 20, 4:00pm**  
**Ag Eng Bldg 105 • Refreshments**