



Presenter

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### *Abstract*

**Title:** *Polymer Microring and Glass Microtube Resonators and Their Sensor Applications*

Optical microresonators are very attractive for compact sensor applications. They can act as universal platform for detecting refractive index changes due to various transduction mechanisms. The microresonators offer a unique advantage of reducing the device size by orders of magnitude without sacrificing the interaction length by virtue of high  $Q$  resonance. In this context, we have exploited polymer microring resonators as label-free biochemical sensors as well as high frequency ultrasound detectors. For biochemical sensing, capillary microtube based resonator is more advantageous due to the ease of fluidic handling. We have observed greatly enhanced sensitivity by exploiting a resonance mode that is different from the conventional evanescent wave. Active microresonators with gain have the potential of increasing the sensitivity even further.

### *Biography*

**DR GUO** joined the Department of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor in 1999, and is currently an associate professor of Electrical Engineering and Computer Science, Macromolecular Science and Engineering, and Applied Physics. He has served on many international conference program committees related to nanotechnologies and photonics and have given numerous invited talks. He also served as symposium chair of two MRS topical symposiums on printing methods for electronics, photonics, and biomaterials. His research areas include nanofabrication technologies, photonic microresonators, organic electronic and photonics, nanoimprint lithography with applications in polymer photonic devices and biotechnologies.