

# ECE SEMINAR

Department of Electrical  
and Computer Engineering

March 4, 2016  
11:00am- 12:00pm  
Egr Bldg 2 Rm E220

## Dr. Yahong Rosa Zheng

### Low- Cost Underwater and Underground Wireless Communications for Structural Health Monitoring

*Wireless communications and Wireless Sensor Networks (WSN) have found important applications in health monitoring of civil structures. However, many critical parts of civil structures are often underwater or underground where the commonly used communication systems, such as WiFi, Bluetooth, Zigbee, and cellular systems, simply cannot work. This presentation will address the challenges of underwater/underground wireless communications and discuss a couple of viable solutions to short- and medium-range underwater and underground wireless communication systems, including acoustic and magneto-inductive communications. Low-cost and long-deployment wireless sensor networks based on these communication means are also presented with energy harvesting systems and practical field applications to bridge scour monitoring.*

Yahong Rosa Zheng received the B.S. degree from the University of Electronic Science and Technology of China, Chengdu, Sichuan Province, China, in 1987 and the M.S. degree from Tsinghua University, Beijing, China, in 1989. She received the Ph.D. degree from the Department of Systems and Computer Engineering, Carleton University, Ottawa, ONT, Canada, in 2002. Since fall 2005, he has been a faculty member with the Department of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO, where she is now a Professor. Her research interests include array signal processing, wireless communications, and wireless sensor networks. She has published more than 60 journal papers and more than 100 conference papers in these areas. She served as technical program Co-Chair for the Wireless Communications Symposium (WCS) of IEEE Globecom 2012 and ICC 2014. She serves as Associate Editor for the IEEE Transactions on Vehicular Technology. Previously, she was an Associate Editor for the IEEE Transactions on Wireless Communications during 2006 --2008. She is the recipient of an NSF CAREER award in 2009. She has been an IEEE fellow and a Distinguished Lecturer of IEEE Vehicular Technology Society since 2015.



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