Abstract: Traditional battery-powered wireless sensor networks face many challenges to meet a wide range of demanding applications nowadays due to their limited energy. Although energy harvesting techniques can scavenge energy from the environment to sustain network operations, dynamics from the energy sources may lead to service interruption or performance degradation when the sources are unavailable. Recent advances in wireless energy transfer have opened up a new dimension to resolve the network lifetime problem. In this talk, we present an overview of the wireless energy transfer techniques and recent developments to apply these techniques in various sensing applications. We also show how this novel technology can be integrated with classic data collection applications and envision future directions in this area.

Bio: Yuanyuan Yang received the BEng and MS degrees in computer science and engineering from Tsinghua University, Beijing, China, and the MSE and PhD degrees in computer science from Johns Hopkins University, Baltimore, Maryland, USA. Dr. Yang is a Professor of Electrical & Computer Engineering, a Professor of Computer Science, and the Associate Dean for Academic Affairs of College of Engineering and Applied Sciences at Stony Brook University, New York, USA. Dr. Yang is internationally recognized for her contributions in networking and parallel and distributed computing systems areas. She was named an IEEE Fellow in 2009 " for contributions to parallel and distributed computing systems." Her current research interests include wireless/mobile networks, data center networking, cloud computing and mobile crowd sensing. Her research group currently develops wireless energy-charging algorithms and mobile data gathering mechanisms in wireless rechargeable sensor networks, data center networks and virtual machine placement algorithms in cloud computing networks and mobile crowd sensing systems. Dr. Yang is currently the Associate Editor-in-Chief for IEEE Transactions on Cloud Computing and an Associate Editor for the Journal of Parallel and Distributed Computing. She has served as the Associated Editor-in-Chief for IEEE Transactions on Computers, and an Associated Editor for IEEE Transactions on Computers and IEEE Transactions on Parallel and Distributed Systems. She has published over 350 scientific papers in leading refereed journals, conferences and book chapters. She is an inventor/co-inventor of seven U.S. patents in the area of interconnection networks. She has served as a distinguished visitor of IEEE Computer Society. She received an IEEE Region 1 Award in 2002, the Best Paper Awards at the 18th IEEE International Parallel and Distributed Processing Symposium in 2004, and the 7th International Conference on Parallel and Distributed Systems in 2000, as well as a Distinguished Leadership Award from the 15th IEEE International Conference on Computer Communications and Networks in 2006. She has served as a general chair, program chair or vice chair for several major conferences and a program committee member for numerous conferences. She has received many research grants as a Principal Investigator from the U.S. National Science Foundation and the Army Research Office.