Addendum

Wednesday June 26, 11:50AM-12:20 PM, Room HT-101

Nonlinearity, Noise, and Dynamic Range in Two-Dimensional Nanoelectromechanical Resonators (Paper ID TFE3S-47)

Max Zenghui Wang, University of Electronic Science & Technology of China (**Invited**)

Abstract: The advent of low-dimensional nanostructures has enabled a plethora of new devices and systems. Among them, nanoelectromechanical systems (NEMS) offers the unique capability of coupling the exquisite material properties found in these atomically-defined nanostructures with their mechanical degree of freedom, opening new opportunities for exploring exotic phenomena at the nanoscale. In this talk I will discuss the theoretical and experimental study of nonlinearity, noise, and dynamic range in two-dimensional nanoelectromechanical resonators, and demonstrate that broad dynamic range can be achieved in such atomically-thin nanomechanical structures.

References:
Jaesung Lee and Zenghui Wang *et al.*, *Science Advances* **4**, eaao6653 (2018).
Zenghui Wang and Philip X.-L. Feng, *Applied Physics Letters* **104**, 103109 (2014)
Jaesung Lee and Zenghui Wang *et al.*, *ACS Nano* **7**, 6086–6091 (2013)

Bio: Max Zenghui Wang is currently a professor in the Institute of Frontier and Fundamental Sciences (IFFS) at the University of Electronic Science and Technology of China (UESTC) and a visiting professor in the Electrical Engineering and Computer Science Department (EECS) at Case Western Reserve University (CWRU), where he had worked as a Research Associate (2012-2014) and Senior Research Associate and Investigator (2014-2016). His research interests and expertise primarily focus on nanoscale devices and systems, particularly *Nanoscale Resonators*, and *High-Frequency Resonant Sensors & Transducers*. Prior to joining Case, during 2010-2012, he worked at Cornell University as a postdoc researcher. He earned a Ph.D. degree (2010) from University of Washington, Seattle, for building an ultra-high frequency NEMS resonant sensor with an individual single-walled carbon nanotube, and using it to detect and study the low-dimensional phase transitions of the atomic layer adsorbed on the nanotube surface. He is an expert on studies of emerging nanoscale devices and sensors based on new materials such as carbon nanotubes, graphene, and other low-dimensional nanomaterials, and has published research articles in peer-reviewed journals, including *Science*, *Nature Nanotechnology*, *Nature Communications*, *Science Advances, Nano Letters*, *ACS Nano*, *Physical Review Letters*, *2D Materials*, *etc.* He is an Associate Editor for *Micro and Nano Letters*, and has been serving on the Technical Program Committees for *IEEE IFCS, IEEE Nano*, and the MEMS/NEMS Technical Group at the *American Vacuum Society (AVS) International Symposium and Exhibition.*