凝聚态物理前沿论坛第三十讲

报告题目：Nanogenerators as New Energy Technology and Piezotronics for Functional Systems

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举办单位：中科院固体物理研究所

报告摘要：

For Wurtzite and zinc blend structures that have non-central symmetry, such as ZnO, GaN and InN, a piezoelectric potential *(piezopotential)* is created in the crystal by applying a strain. Such piezopotential can serve as a “gate” voltage that can effectively tune/control the charge transport across an interface/junction; electronics fabricated based on such a mechanism is coined as *piezotronics*, with applications in force/pressure triggered/controlled electronic devices, sensors, logic units and memory. By using the piezotronic effect, we show that the optoelectronc devices fabricated using wurtzite materials can have superior performance as solar cell, photon detector and light emitting diode. Piezotronics is likely to serve as a “mechanosensation” for directly interfacing biomechanical action with silicon based technology and active flexible electronics. **This lecture will focus on the fundamental science and novel applications of piezotronics in sensors, touch pad technology, functional devices and energy science.**

报告人简介：

Dr. Zhong Lin (ZL) Wang received his PhD from Arizona State University in transmission electron microscopy. He now is the Hightower Chair in Materials Science and Engineering, Regents' Professor, Engineering Distinguished Professor and Director, Center for Nanostructure Characterization, at Georgia Tech. Dr. Wang has made original and innovative contributions to the synthesis, discovery, characterization and understanding of fundamental physical properties of oxide nanobelts and nanowires, as well as applications of nanowires in energy sciences, electronics, optoelectronics and biological science. His discovery and breakthroughs in developing nanogenerators establish the principle and technological road map for harvesting mechanical energy from environment and biological systems for powering a personal electronics. Dr. Wang’s publications have been cited for over 57,000 times. The H-index of his citations is 117.