

# Nebraska Center for Materials and Nanoscience

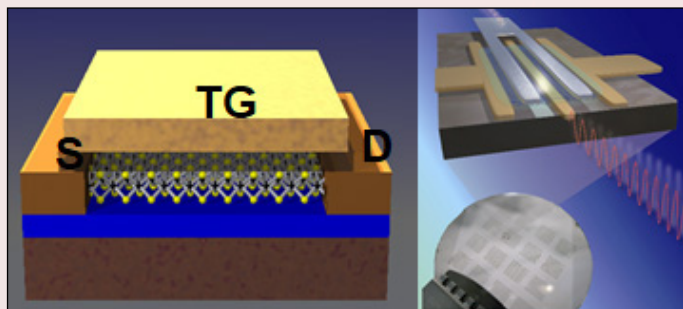
2017 Fall Seminar Series

Co-sponsored with the Department of Physics and Astronomy

**Dr. Wenjuan Zhu** Department of Electrical and Computer Engineering  
Assistant Professor, University of Illinois at Urbana-Champaign

*Nanoscale Devices based on Two-dimensional Materials:  
The study of the electronic and optoelectronic properties of 2D van der Waals  
materials, including graphene and transition metal dichalcogenides*

Two-dimensional (2D) materials are layered crystals with strong in-plane covalent bonds and weak interlayer van der Waals bonds. These materials have many unique chemical, mechanical, optical and electrical properties, which not only provide a platform to investigate fundamental physical phenomena but also may provide solutions to some of today's most pressing technological challenges. In this talk, Dr. Zhu will present her lab's work on understanding the electrical properties of graphene, transition metal dichalcogenides, black phosphorus, group IV chalcogenides, and their heterostructures. She will also present their work on the nano-scale electronic devices (logic devices and radio frequency devices) and photonic devices (plasmonic devices and photo-detectors) based on these 2D materials.



**Dr. Wenjuan Zhu** is an assistant professor in the Department of Electrical and Computer Engineering at the University of Illinois at Urbana-Champaign. Dr. Zhu received her Ph.D. degree in the Department of Electrical Engineering at Yale University in 2003. After graduation, she joined IBM's Semiconductor Research and Development Center. She made key contributions to the 65nm and 32nm CMOS technology nodes. In 2008, she joined the IBM T.J. Watson Research Center and worked on 2D materials including graphene and layered transition metal dichalcogenides. In 2014, she joined the faculty at the University of Illinois and established a research group focusing on 2D materials and nanoscale devices. Her research in the past has resulted in more than 80 publications in journals/conferences and has 24 patents issued/pending. Dr. Zhu received the NSF CAREER award in 2017, IBM Research's Pat Goldberg Memorial Best Paper Award in 2013, Outstanding Technical Achievement Award at IBM in 2008, more than ten Invention Achievement Awards at IBM, and the Henry Prentiss Becton Graduate Prize for exceptional achievement in research in Engineering and Applied Science at Yale University in 2003.



October 12 | 4 p.m. | 136 Jorgensen Hall  
Refreshments in 1st floor vending area at 3:30 p.m.

**Host: Xia Hong**  
Department of Physics and Astronomy

