凝聚态物理前沿论坛第三十五讲

报告题目：Carbon Nanotube Films: Synthesis and Applications for Electricity Storage

报 告 人：Prof. Bingqing Wei（魏秉庆）

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举办单位：中科院固体物理研究所

报告摘要：

Electricity storage is a growing challenge among a broad range of renewable energy sources. The development of high-energy storage devices has been one of the research areas of top most importance in recent years and rechargeable batteries and/or electrochemical capacitors (supercapacitors) are anticipated to be the primary sources of power for modern-day requirements in portable electronic devices, satellites, and electric vehicles. In the meantime, flexible/stretchable electronics have attracted considerable attention very recent years and have opened the door to many important applications that current, rigid electronics cannot achieve. In order to accommodate these needs, electricity storage devices must be flexible and stretchable in addition to their high energy and power density, light weight, miniaturization in size, and safety requirements. Utilizing nanomaterials and nanostructures such as carbon nanotubes (CNTs) for various electricity storage applications such as electrodes in lithium ion batteries and supercapacitors are under close scrutiny because of the promising electrochemical performance of such nanomaterials. Recently, there has been growing interest in CNT macrostructures, particularly film-like structures because of their unique and usually enhanced properties and tremendous potential for applications in energy conversion and storage. In this presentation, I will report our research efforts on synthesizing 2D CNT macrofilms using chemical vapor deposition method. The CNT films are flexible, machinable and free-standing that could satisfy the needs to develop flexible and even stretchable electricity storage devices.

报告人简介：

Dr. Bingqing Wei (B. Q. Wei) received his Bachelors degree (1987), M.S (1989), and Ph.D. (1992) in Mechanical Engineering from Tsinghua University, Beijing, China. His research expertise lies in nanomaterials and nanotechnology.

He is currently a Tenured Professor in the Department of Mechanical Engineering at the University of Delaware, USA. He was an Assistant Professor in the Department of Electrical & Computer Engineering and Center for Computation & Technology at Louisiana State University from 2003 to 2007. He had worked as a Post-doctorate Research Associate at Rensselaer Polytechnic Institute, Department of Materials Science and Engineering and Rensselaer Nanotechnology Center from 2000 to 2003. Dr. Wei was a visiting scientist for Max-Planck Institut für Metallforschung, Stuttgart, Germany in 1998 and 1999. He was a faculty at Tsinghua University in Beijing from 1992 to 2001.

Prof. Wei His scholarly achievements in the field of nanomaterials and nanotechnology and, particularly in the research of carbon nanotubes are fully reflected from his 214 papers published in refereed international journals, including Nature and Science, more than 110 scientific conference presentations and 130 plus invited talks and seminars in academia and industry worldwide. His research work has been cited more than 10000 times by peer scientists with h-index of 53 and has also been highlighted many times in scientific journals, web journals and public media. His recent research focuses on controllable synthesis of macroscale nanotube architectures with 1-, 2-, and 3-dimensions; physical, chemical, electrochemical, and mechanical property characterizations of nanotubes; and energy storage device applications.