

高分子科学系列讲座

高分子物理与化学国家重点实验室 中国科学院长春应用化学研究所

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从事专业	Chemical and Biological Engineering		
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报 告 时 间	2012.3.31 上午 9:00	报 告 地 点	主楼四楼学术报告厅(410#)
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报 告 人 背 景	<p>1984 – 1989: PhD, Chemical Engineering, Stanford University 1989 – 1990 Visiting Scientist, IBM Almaden Research Center, California, USA 2001 – Present Professor, Seoul National University, Seoul, Korea 2005: Invited Professor, Ecole Supérieure de Physique et Chimie Industrielle (ESPCI), Paris, France 2009 : Invited Professor, Massachusetts Institute of Technology (MIT), Boston, USA 2010 – Present Director, The National Creative Research Initiative Center for Intelligent Hybrids.</p> <p>Areas of Research Interests</p> <ul style="list-style-type: none"> ● Interfacial Phenomena of Homo- or Block-Polymers Involving Solid/Liquid and Melt/Melt (Composite) Interfaces ● Organic-Inorganic Hybrids and Nanocomposites ● Directed Assembly ● Hierarchical Nano/Micro Patterning ● Applications to Nanodevices (OLED, PLED, Photovoltaic cells) and Nanomedicine (DDS and Controlled Release Thin Film Systems) 		
报 告 题 目	Functional Thin Film Platforms and Intelligent Hybrid Materials		
内 容 摘 要	<p>Polymer thin films with nanostructure and functions have recently received much attention due to many important potential applications such as nanolithography and nanopatterning for nanodevices, biologically relevant surfaces for sensors and drug delivery, photonic or electronic devices, and many others. Many nano-objects (such as quantum dots, nanotubes or nanowires, and nanosheets) carrying unique functions should be incorporated into the polymer thin films to achieve such practical goals. Tremendous efforts have also been devoted to the intelligent hybrids for energy efficient optoelectronic devices with multifaceted approaches such as design and synthesis of nanomaterials, optimal realization of nanostructures, and their relationship with device performance. Particularly, the design and noble synthesis of functional materials such as semiconductor nanocrystals (NCs), understanding the interfacial phenomena involving functional inorganic nanomaterials dispersed in an organic (or polymeric) medium, and manipulating the interfaces in various device structures are the ones of the most decisive factors for the successful realization of optoelectronic devices because critical issues such as photogeneration, charge recombination, and exciton transfer in the optoelectronic system typically take places at the interfaces.</p> <p>In this presentation, I will discuss recent progresses in our laboratory in block copolymer thin films and layer-by-layer thin film depositions to program (multiple) functions within the thin films. Also, the hybridization schemes for organic-inorganic structures optimal for various applications will be presented and the hierarchical structure mimicking the Nature, combining both the bottom-up and the top-down approaches, will be briefly discussed</p> <p>Considering the wide application areas of both functional thin films and hybrid materials, the approaches taken in present study are likely to open up new possibilities for new advanced materials or devices with multifunctional properties.</p>		