黄昆半导体科学技术论坛

**第338期讲座**

**报告题目:** **Addressing Fundamental Issues in Organic Electronics: Spin-Orbital Coupling Effects in Weak and Strong Orbital Materials Including TADF, Non-Fullerene Photovoltaics, and Perovskites**

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**摘要：**Organic electronics have become an emerging science with amazing capabilities of generating highly efficient photovoltaic, light-emitting, and lasing actions based on localized and spatially extended states through mutually controllable intermolecular-intramolecular functionalities based on weak and strong orbital materials. However, there have been fundamental issues that need to be addressed to reveal the deeper underlying mechanisms responsible for such highly-efficient photovoltaic, light-emitting, and lasing actions through multiple excited states. In particular, organic materials can be fundamentally divided into weak-orbital and strong-orbital substances where spin-orbital coupling (SOC) can ultimately control photovoltaic, light-emitting, and lasing actions through long-range electric and short-range magnetic parameters. This presentation will discuss the SOC effects occurring in TADF, non-fullerene solar cells, and perovskite devices to understand the deeper underlying mechanisms responsible for high-efficient photovoltaic, light-emitting, and lasing actions in weak-orbital and strong-orbital materials.

**简历：**Prof. Bin Hu got his PhD from Changchun Institute of Physics, Chinese Academy of Sciences in 1991. He done his postdoc at Department of Polymer Science & Engineering, University of Massachusetts from 1992 to 1995, and then as a Research Scientist at the same university from 1996-1998. He was a Senior Research Scientist at SICPA Securink Inc since from 1998-2002. Since 2002, he joined Department of Materials Science and Engineering, University of Tennessee as an assitant professor, in 2013, he was prompted to full professor. His reseach interests mainly in spin electronics in organic electronic materials and devices. He has obtained numerous awards including National Science Foundation Career Award.

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