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高压下碳材料的新奇结构

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时间: 11月03日 (星期四) 15:00—16:30

地点: 北京大学物理大楼中212教室

报告人简介: 吉林大学教授。1989年吉林大学物理系本科毕业; 1995年吉林大学超硬材料国家重点实验室博士毕业并留校工作, 曾赴瑞典做两年博士后, 现任超硬材料国家重点实验室主任。长期从事高压物理和纳米材料的基础研究, 在高压新结构、新性质以及高压新材料研究方面取得了系列结果。在包括**Science**、**PNAS**等刊物上发表论文近200篇。教育部长江学者、国家杰出青年基金获得者、“万人计划”人选、中国青年女科学家奖获得者。现为中国物理学会高压物理专业委员会秘书、表面物理专委会以及物理光散射专委会委员。

摘要: The phase transformation of nanomaterials under high pressure have attracted growing research interest due to the appearance of nanometer scale size effect and the novel high pressure behavior which is hardly discovered in their corresponding bulk samples. Deeply understanding those unusual high pressure structures and physical phenomena unveils new aspects of the intrinsic physics of nanomaterials. Carbon nanomaterials, such as nanotubes, fullerene, provide us ideal carbon sources to study novel phase and design new carbon materials induced by high pressure. In this presentation, *in situ* high pressure technique will be introduced and several examples on high pressure induced novel structural phase transition in recently studied typical nano-confined carbon materials will be also outlined, including high pressure induced polymerization and new sp^3 phase in carbon nanotube peapod, unique long range ordered crystal with amorphous nanoclusters as building blocks in solvated fullerene crystals which brings new physical insight to understand order and disorder concept and new approach to design superhard carbon materials. These studies show that high pressure is a powerful tool and provides a new dimension for study of nanomaterials.

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Photoed by Xiaodong Hu