WEEKLY SEMINAR

Topic: **Theoretical Studies of Graphene Nanoribbons: Growth Mechanism, Controllable Synthesis and Design**

Speaker: **Jinlan Wang, Southeast University**

Time: 15:30-16:30, 25 March, 2014

Venue: Room 153, Geography Building, 3663 Zhongshan Road North, Shanghai (华东师范大学中山北路校区，地理楼 153 室)

ABSTRACT OF THE TALK

Graphene, the thinnest two-dimensional material in nature, possesses abundant distinctive properties. Nevertheless, graphene itself is a zero band gap semi-metal which hinders its application in future electronics. One way to open a gap is to cut two dimensional graphene sheets into one-dimensional graphene nanoribbons (GNRs) which were verified both experimentally and theoretically that the band gap is as large as 0.3eV when the width is smaller than 5nm. Therefore, the key problem is how to make large-scale high quality GNRs with narrow width and smooth edges. In this talk, I will discuss our recent work made on this aspect including the growth mechanism of metal catalytic cutting of carbon nanotubes [1] and graphene sheets [2] and oxidization of graphene applying a uniaxial external strain [3] and design of a series of Y-shaped three branch graphene nanoribbons with tunable electronic and magnetic properties [4, 5].

References:

[1] Wang, J.L.; Ma, L.; Yuan, Q.H.; Zhu, L.Y.; Ding, F. Angew. Chem. Int. Ed. 2011, 50:8041(selected as the Cover).
[2] Ma, L.; Wang, J.L.; Ding, F. Angew. Chem. Int. Ed. 2012, 51: 1161.
[3] L. Ma, J. L. Wang, F. Ding, submitted (2014).
[4] Zhu, L.Y.; Wang, J.L.; et al., Nano Lett., 10, 494 (2010).
[5] L. Ma; Zhu, L.Y.; Wang, J.L. J. Phys. Chem. C, 115, 6195 (2011).

BIOGRAPHY

Jinlan Wang, full professor of Department of Physics, Southeast University. She graduated from Nanjing University at 2002 and had three-year Postdoctoral experiences at Chemistry Division, Argonne National Laboratory from 2003 to 2005 and joined in Southeast University since 2006. She published more than 90 refereed journal publications including Nat. Commun., J.Am.Soc.Chem., Angew. Chem., Nano Lett., ACS Nano, and her current research interests focus on physics and chemistry of low-dimensional materials including atomic clusters, organometallic sandwich molecular wires, graphene and graphene-like two-dimensional sheets, etc.