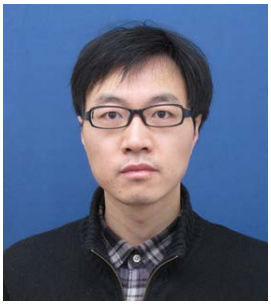
IBS Center for Multidimensional Carbon Materials

Special Guest Seminar



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Revealing the microscopic growth mechanisms of atomically thin two-dimensional materials via advanced transmission electron microscopy

Nov 6
Mon16:00

Bldg. 101
Seminar Room on the 1st floor

Abstract: The controllable growth of high quality and large-scale of atomically thin two-dimensional materials is becoming the bottleneck towards their practical applications. It is thus an essential issue to understand the microscopic growth kinetics and mechanisms of these novel two-dimensional materials. Of them, quantitative and statistic characterizations via advanced transmission electron microscopy may serve as an indispensible tool for this purpose, particular for the information at atomic level. In this work, I will introduce you a few examples on revealing (i) the distribution of point defects in monolayer molybdenum disulfide, (ii) the growth kinetics and evolution of edge structures of MoS_2 (and $MoSe_2$) flakes, (iii) the formation and atomic structures of unusual grain boundaries in hexagonal boron nitride.

Reference:

[1] J. H. Hong, C. H. Jin et al., Nature Communications (2015); D. C. Zhu, C. H. Jin et al., npj 2D Materials and Applications (2017);
[2] H. L. Wang, W. D. Gao, D. C. Zhu, C. H. Jin, submitted work (2017); V. Asokan, C. H. Jin et al., submitted work.
[3] X. B. Ren, C. H. Jin et al., submitted work.

Chuanhong Jin received his Ph.D. degree in 2006 from Institute of Physics, Chinese Academy of Sciences (CAS). He moved to the Nanotube Research Center in National Institute of Advanced Industrial Science and Technology (AIST) Japan, initially as a JSPS Postdoctoral Research Fellow, and later became a staff scientist there. He joined the faculty of Zhejiang University in 2011 as Professor at the Center for Electron Microscopy, State Key Laboratory of Silicon Materials and School of Materials Science and Engineering. He is among the 1000 Young Talents of China, as selected in 2012 under the National Recruitment Program. Dr. Jin has expertise in studying the atomic and electronic structure of two-dimensional materials via advanced electron microscopy and spectroscopy, focusing mostly on defect physics. He is also interested in liquid-phase scanning/transmission electron microscopy and its applications in studying the nucleation, growth and oxidative etching of nanocrystals in solution.

You are cordially invited to attend!