

SPEM application highlights at the Pohang Light Source

Hyun-Joon Shin

Pohang Accelerator Laboratory, Pohang University of Science and Technology,
Pohang, Kyungbuk 790-784, Republic of Korea

The space resolution of a Scanning Photoelectron Microscopy (SPEM) at the Pohang Light Source (PLS) is around 500 nm, which might not be competitive in practical application to device materials for industrial community when compared to scanning probe microscopes. Nevertheless, based on the capability of providing chemical state and electronic structure information and the availability of implementing in situ experimental techniques, the SPEM at the PLS has been fruitfully applied to resolve many of important issues that had been raised among the industrial community. One example issue was an investigation of degradation mechanism of optoelectronic devices, such as organic light-emitting devices and polymer light emitting device. [1] The other issue has been to develop nanolayer patterning technique for next generation lithography. [2] Other related examples are identification of peeled-off graphene layers [3] and investigation of chemical route to nanotube diodes. [4]

[1] J. Lee *et al.*, Appl. Phys. Lett. 93, 133310 (2008). J. Chung *et al.*, Organic Electronics 9, 869 (2008). H. J. Shin *et al.*, Appl. Phys. Lett. 89, 063503 (2006).

[2] S. Moon *et al.*, Adv. Mater. 19, 1321 (2007). S. Moon *et al.*, Appl. Phys. Lett. 91, 193104 (2007). H. Jee *et al.*, submitted.

[3] K. Kim *et al.*, Adv. Mater. 20, 3589 (2008).

[4] H. Lim *et al.*, J. Am. Chem. Soc. 130, 2160 (2008).