***YY4.06**
Low-voltage STEM-EELS with Atomic Sensitivity
Kazu Suenaga
AIST, Tsukuba, Japan

Lowering the accelerating voltage of TEM/STEM is becoming essential when one aims to image any beam sensitive objects. Especially, observation of small molecules made of light elements does require the reduced accelerating voltage, in order not to destroy the molecular structures by the knock-on effect and to enhance the image/EELS contrast. In order to compensate the poorer spatial resolution, more sophisticated electron optics is definitively required for the low voltage TEM/STEM to reduce the residual geometric/chromatic aberrations. I will summarize the low-voltage TEM/STEM developments under the triple C project and show exmaples for single atom spectroscopy (1-4). (1) K. Suenaga et al., Nature Chem. 1 (2009) 415-418. (2) K. Suenaga and M. Koshino, Nature, 468 (2010) 1088-1090. (3) Z. Liu et al., Nature Communications, 2 (2011) 213. (4) K. Suenaga, H. Kobayashi and M. Koshino, Phys. Rev. Lett., 108 (2012) 075501