

第183回エンレイソウの会

場 所： 北海道大学工学部A棟 (A1-17)

日 時： 2013年1月11日 (金曜日) 12:00~13:00

講演者： 末永 和知 氏 (産業総合研究所)

題 目： 『電子顕微鏡による低次元物質中の欠陥構造解析』

『 Atomic imaging and spectroscopy of interrupted periodicities in low-dimensional materials 』

要 旨 : Low-dimensional materials gather wide range of interests both in the fundamental and technological viewpoints. In the families of 2D materials, graphene, h-BN and dichalcogenides (TX_2) are mostly endeavored for electronic and mechanical device applications. The physical and chemical properties of these low-dimensional materials are largely dependent of the atomic configurations with the interrupted periodicities such as defects and edge structures. Here we will show our recent progress in electron microscopy and its in situ investigations to visualize the various atomic defects in the low-dimensional carbon or non-carbon nanostructures. The migration of topological defects in nanotubes and WS_2 nano-ribbons [1, 2], the spectroscopy of single carbon atoms at the open edges [3], the monovacancy analysis in h-BN single-layer [4] and also the alloying and doping behaviors of $Mo_xW_{1-x}S_2$ single-layers [5] will be presented.

[1] K. Suenaga, H. Wakabayashi, M. Koshino, Y. Sato, K. Urita and S. Iijima, Nature Nanotech., 2 (2007) 358.

[2] Z. Liu, K. Suenaga, Z. Wang, Z. Shi, E. Okunishi and S. Iijima, Nature Commun. 2 (2011) 213.

[3] K. Suenaga and M. Koshino, Nature, 468 (2010) 1088.

[4] K. Suenaga, H. Kobayashi and M. Koshino, Phys. Rev. Lett., 108 (2012) 075501.

[5] D. Dumcenco, H. Kobayashi, Z. Liu, Y.-S. Huang and K. Suenaga, Nature Commun. (in press).

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