

26th RAP Seminar

The 26th Seminar on RIKEN Center for Advanced Photonics

Language: Japanese

Date: **Sept. 19 (Fri) 16:00 - 17:00, 2015**

Location: **Cooperation Center, 3F, W319, Wako Campus, RIKEN**
(理研 和光キャンパス 研究交流棟3階会議室 W319)

Title: **Low-Dimensional Materials: Their structures, Growth and Applications**

低次元物質：その構造、成長、応用

Speaker: **Prof. Sumio IJIMA**

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Carbon nanotubes (CNT)[1], chrysotile asbestos, imogolite[2], and many biological substances are known to have tubular morphologies, resulting from anisotropic growth in a particular crystal orientation. In the case of CNT, the presence of catalytic metal particles seems to control a tubular morphology. In general, the formation of nanometer-scale tubular structures is caused mostly by a molecular conformation of a building block unit or a total energy of the tubular structure system.

Aluminum hydroxide AlO(OH), boehmite, which has variety of morphologies from a fibril, low-dimensional sheet, platelets, to bulk crystal. One of them is a "quasi-one-dimensional" fibril structure, which grows in aqueous solution as a gel form. Recently we disclosed its detailed crystal structure and selective growth parallel to the c-axis [3]. The growth was of interest in terms of peptization of AlO ion clusters in colloidal particle formation.

The talk includes also structure characterizations of graphene and its two-D growth in terms of use of the latest TEM techniques.

- 1) S. Iijima, Nature, **345**, 56(1991).
- 2) K. Wada et al., Amer. Min., **54**, 50(1969).
- 3) S. Iijima & L. Zheng, in preparation (2015).



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