

Study the dynamic behaviors of noble metal nanocrystals in solution by liquid-cell electron microscopy

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Keywords: Scanning transmission electron microscopy, liquid-cell, oxidative etching, dendrite growth

Abstract. To investigate the liquid-phase processes are crucial in a wide areas including the controlled growth of nanocrystals for energy applications. Liquid-cell electron microscopy, as an emerging technique, has enabled direct observation of nanocrystal growth in a liquid phase. [1, 2] In this talk, we will present a few experimental approaches made in the Center of Electron Microscopy of Zhejiang University including: (1) the introduction of gas bubbles to form ultra-thin liquid layer under controllable electron beam irradiation, and to improve the attainable spatial resolution for liquid-cell electron microscopy; (2) the growth of two-dimensional metallic dendrites; (3) the first experimental observation on the oxidative etching induced dissolution of metallic nanocrystals.

This work was financially supported by NSFC, MOST and the State Key Laboratory of Silicon Materials.

Reference.

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Dr. Chuanhong Jin obtained his PhD degree in Condensed Matter Physics in 2011 from the Institute of Physics, CAS. He then joined the Nanotube Research Center in AIST, Japan, firstly working as a JSPS postdoc fellow, and then a member of staff scientists. In 2011, he was appointed as a professor in School of Materials Science & Engineering of Zhejiang University. His current research is mostly focused on the studying the atomic and electronic structures of atomically thin 2D materials by advanced electron microscopy and spectroscopy, and the development and applications of liquid-cell (scanning) transmission electron microscopy in noble metal nanocrystals.

