

Characterization of micro-size organic conductors

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Characterization of microcrystal grown in the nanovolume cell is performed, enabled investigating local homogeneity; we have performed microscopic observation of micro-size crystals using electron microscopes. The observation showed that the organic crystal growth of electrochemical method is not as simple as illustrated previously and suggesting new mechanism of crystal growth method.

Microcrystals of organic conductors have been attracting attention these years. However, as the crystal size is micro-scale largest, the existing characterization technique, such as X-ray or electrical transport measurement is hard to apply. There have been a couple of studies to measure electrical resistance after crystal growth of which reported results showed fragile contact resistance between electrodes and crystals for low temperature.

To investigate the physical properties of micro-crystals, we performed several microscopic technique on these crystals, such as Transmitting Electron Microscope (TEM) and Scanning Electron Microscope (SEM). Electron Microscopes enabled us to investigate components of material and its crystal structure. We found the components of crystals observed in nanoliter growth cell differ for different crystal shapes. We will discuss about crystal growth mechanism in electrochemical method as well as the investigation technique of micro-crystal as well.

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