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Morphology of C_{60} crystals synthesized in microfluidic space KYOSUKE SHINOHARA, TAKESHI FUKUI, Department of Quantum Engineering and Systems Science, University of Tokyo, HIROAKI ABE, Department of Nuclear Engineering and Management, University of Tokyo, NAOTO SEKIMURA, KOJI OKAMOTO, Department of Quantum Engineering and Systems Science, University of Tokyo, VISUALIZATION LABORATORY TEAM — Since their initial discovery in 1985, Fullerene C_{60} has attracted significant attention for their unique physical and chemical properties. In terms of technological issues, fabricating C_{60} crystals with complex shapes for practical uses is a very important challenge. Recently, the liquid/liquid interfacial precipitation method for the synthesis of needlelike C_{60} nanowhisker crystals was reported. However, the bulk structures of these C₆₀ crystals were all uniform and were single-dimensional. Here, we report unusual structures of C_{60} crystals including tubes, trees, branches, hollow-ended columns, multiple pods, short prisms, and needles synthesized in a microfluidic device using a simple liquid/liquid interfacial precipitation method. The C_{60} crystal morphology is categorized mainly by temperature, and is similar to the morphology of snow crystals. This simple method yields complex geometries of C_{60} crystals quickly, and could be applied to all materials synthesis techniques that use liquid/liquid interfacial precipitation.

> Kyosuke Shinohara University of Tokyo

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