

Abstract Submitted
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Solvent involved self-crystallization of C₇₀ molecules into high definition cube microstructure¹ CHIBEOM PARK, HEE CHEUL CHOI, Department of Chemistry and Division of Advanced Materials Science, Pohang University of Science and Technology (POSTECH) — C₇₀ molecules dissolved in mesitylene (good solvent) are self-crystallized into cube shape microstructure by the addition of isopropyl alcohol (poor solvent). Through control experiments attempted with different types of alcohols as well as in the replacement of mesitylene with other similar solvents, such as toluene, m-xylene, and m-dichlorobenzene, it is confirmed that mesitylene plays a critical role to guide C₇₀ molecules to form cube microcrystal with high definition edges and surfaces. Thermal gravimetric and crystallographic analyses show that the crystal structure is simple cubic whose unit cell is composed of one C₇₀ and two mesitylene molecules. The photoluminescence intensity from C₇₀ cube crystals are enormously increased compared to C₇₀ powder. Such abnormal photoluminescence increase is mainly attributed to the high crystallinity of C₇₀ cubes as confirmed by time-resolved photoluminescence lifetime measurements.

¹C. Park, E. Yoon, M. Kawano, T. Joo, and H. C. Choi, *Angew. Chem. Int. Ed.* (to be published)

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