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ABSTRACT BOOK

Nanoscale Optical Characteristics of Multi-dimensional Rubrene Nanocrystals

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Multi-dimensional rubrene nanocrystals such as nanoparticles, nanorods, nanoribbons, and nanoplates were fabricated by using organic vapor deposition method. We observed that the sizes and shapes of rubrene nanocrystals were dependent on the growth temperature, growth time, gas flow rate, and substrate used. The formation of various shaped rubrene nanocrystals was visualized through SEM and TEM images. The structural properties of the nanocrystal systems were investigated through XRD and HR-TEM experiments. From nanoscale photoluminescence (PL) experiments using laser confocal microscope (LCM), the distinct nanoscale PL characteristics of rubrene nanocrystals were observed depending on the dimensionality and the shape, which were analyzed by WITec project software for scanning probe data. The light waveguide using rubrene nanocrystals were characterized by using LCM experiments. The photocurrent and photosensitivity characteristics of various rubrene nanocrystals were also measured by means of field-effect transistor pattern.