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C60-Incorporated Carbon Nanohorns: Control of Filling and Releasing RYOTA YUGE, NEC, MASAKO YUDASAKA, NEC, TOSHINARI ICHIHASHI, NEC, YOSHIMI KUBO, NEC, SUMIO IIJIMA, NEC — Single-wall carbon nanohorn (SWNH) has structures similar to single wall carbon nanotube, and nanometer-scaled holes were opened through the walls by heating in oxygen (SWNHox). Recently, we have succeeded in a large-scale preparation of C_{60}-incorporated SWNHox (C_{60}@SWNHox) at room temperature in liquid phase by our new method of "nano-precipitation." In this report, we show that incorporation of C_{60} inside SWNHox could be confirmed by TEM observation, Raman spectrum measurements, and X-ray diffraction measurements. Quantity of C_{60} incorporated inside SWNHox was estimated from thermogravimetric analysis. The release rates of C_{60} from C_{60}@SWNHox in solutions were able to be clarified by UV/Vis absorption measurements. Through these investigations, we found that the filling quantities and release rates of C_{60} were able to be controlled easily for SWNHs. These are advantages of large-diameters of the tubes to which C_{60} molecules are bound moderately.

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