Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Incorporation and release of materials into/from nanohorns used as drug delivery systems MASAKO YUDASAKA, NEC - JST 34,Miyukigaoka Tsukuba 305-8501 Japan, JING FAN, JIN MIYAWAKI, JST, SUMIO IIJIMA, NEC - JST - Meijo University Tempaku Nagoya Japan — We have established methods of incorporating organic materials into nanohorns in the liquid phase at room temperature in a quality-controlled manner. The methods are classified into two types: quasi-equilibrium or non-equilibrium. We can choose a suitable type depending on the affinity between guest molecules and nanohorns. When nanohorns are used as drug carriers in drug delivery systems, the incorporated materials must be released, ideally over controllable period of time. We found that the release process included fast components that release 50–70% of the materials quickly as a result of the weak binding among the molecules in the central region inside the hollow spaces of the nanohorns. We also found methods of slowing down the quick release, which should improve the applicability of nanohorns as drug carriers in drug delivery systems.

Masako Yudasaka
NEC - JST

Date submitted: 01 Dec 2004 Electronic form version 1.4