

## Controlled Overgrowth of Pt on Shape-Controlled Au Nanocrystals

민민규, 이현주\*

연세대학교

(azhyun@yonsei.ac.kr\*)

Shape controlled Au nanocrystals (octahedral, cubic and spherical shape) was prepared with different surface atomic structure of (100) surface for cubes and (111) surface for octahedra. Pt was overgrown on various shapes of Au nanocrystals by using  $K_2PtCl_4$  as Pt salts and ascorbic acid as reducing agents. Pt overgrowth mode was varied by surface structure of Au nanoparticles. For example, on spherical Au nanocrystals, Pt shell showed smooth surface and shell thickness was well-controlled by varying the concentration of Pt salt. On the other hand, localized overgrowth of small Pt islands was observed on the surface of Au octahedra or cubes. . Morphology of the synthesized nanocrystals was characterized by TEM and SEM images. The composition and shell thickness was confirmed by EDX analysis. Their optical properties were also investigated by measuring surface plasmon resonance (SPR) band of Au@Pt nanocrystals and the effect of the shape and shell thickness was evaluated.