

Synthesis of Nano Hybrid Gold/PMMA Materials by Synchrotron Radiation Hard X-ray

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New type of nano hybrid gold/PMMA materials is synthesized in this study. With different ratios of precursors, poly(methyl methacrylate) (PMMA) coated by nano gold particles or nano gold particles coated by PMMA can be synthesized from H₂AuCl₄ and MMA/medium solutions without any reducing agent by the National Synchrotron Radiation Research Center (NSRRC) beamline (01A, hard x-ray) facility in Taiwan. According to the mechanism of photochemical reduction, nano gold particles are induced from H₂AuCl₄ solution firstly, and hybrid with PMMA under polymerization in MMA stock solution without heating. One type of the nano hybrid is PMMA modified by gold particles, and the other one is nano gold particles coated by PMMA. These new nano hybrid materials can be applied in the fields of bio-sensors and drug delivery. The different structures and characterizations are also carried out by various analyzers.

References:

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