Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Design, Characterization and Application of Biocompatible Micro- and Nano-Particles for Dynamic X-ray Visual Imaging SUNGSOOK AHN, SUNG YONG JUNG, SANG JOON LEE, POSTECH, POSTECH TEAM — For a dynamic X-ray visual imaging, contrast agents in particle forms are developed in micro- and nano-scales. First, water- soluble contrast agents are encapsulated into biocompatible polymeric microparticles. The fabricated polymeric microparticles are controlled in terms of the size, degree of crosslinking and encapsulation efficiency of the X-ray contrast agent. Second, gold is designed into functionalized nanoparticles. Properly controlled aggregates or encapsulated into human red blood cell (RBC), the surface modified gold nanoparticles are used as excellent X-ray contrast agent. The behaviors of the particles in the solution state are described by hydrodynamic size (DH) and zeta-potential (?-potential). The microscopic structures of the gold nanoparticle aggregates are determined by scanning electron microscopy (SEM) and zone-plate X-ray microscopy. The designed particulate biocompatible tracers are successfully used as excellent X-ray imaging tracers which enable the dynamic study in various biological fluid flows.

Sungsook Ahn
POSTECH

Date submitted: 16 Nov 2009 Electronic form version 1.4