Abstract Submitted
for the GEC11 Meeting of
The American Physical Society

Synthesis of Water-Soluble Gold Nanoparticles Covered with DNA Using Gas-Liquid Interfacial Plasma TOSHIRO KANEKO, Department of Electronic Engineering, Tohoku University, QIANG CHEN, RIKIZO HATAKEYAMA — Water-soluble gold nanoparticles (AuNPs) covered with DNA are desired for the application to a novel DNA delivery system. A gas-liquid interfacial discharge plasma (GLIDP) in association with DNA is used for the rapid synthesis of a DNA-AuNP conjugate, where the synthesis is free from the elaborate reaction control usually required in conventional methods. Moreover, the size and morphology of the AuNPs are simply tuned by varying the concentration and type of DNA which acts as a stabilizer through conjugating on the AuNPs. The DNA conjugation prevents the AuNPs from a further coalescence, resulting in the formation of small-sized AuNPs. These small-sized DNA-AuNP conjugates are encapsulated into carbon nanotubes which work as a capsule for the delivery to a diseased part.

Toshiro Kaneko
Department of Electronic Engineering, Tohoku University

Date submitted: 15 Jul 2011 Electronic form version 1.4