# 금속나노입자의 종류에 따른 나노입자 기반 비휘발성 메모리 소자의 특성 변화에 관한 연구

김용무, 박영수, 이장식

국민대학교

# A Study on the Tunable Memory Characteristics of Nanoparticle-Based Nonvolatile Memory devices according to the Metal Nanoparticle Species

Yong-Mu Kim, Young-Su Park and Jang-Sik Lee

Kookmin University

**Abstract :** We investigated the programmable memory characteristics of nanoparticle-based memory devices based on the elementary metal nanoparticles (Co and Au) and their binary mixture synthesized by a micellar route to ordered arrays of metal nanoparticles as charge trapping layers. According to the metal nanoparticle species quite different programming/erasing efficiencies were observed, resulting in the tunable memory characteristics at the same programming/erasing bias conditions. This finding will be a good implication for further device scaling and novel device applications since most processes are based on the conventional semiconductor processes.

**Key Words :** nonvolatile memory, diblock copolymer micelles, metal nanoparticles, memory characteristics