## Synthesis of Hex Nut Shaped Au-Ag Nanostructures via a Galvanic Replacement Reaction and Their Optical Properties

Mun Ho Kim,<sup>a</sup>\* Jong-Jin Lee,<sup>a</sup> Sang-Hyuk Im<sup>b</sup>, Doo-Jin Byun,<sup>a</sup> Kil-Yeong Choi<sup>a</sup>\*

<sup>a</sup>Reliability Assessment Center for Chemical Materials, Korea Research Institute of Chemical Technology (KRICT), 141 Gajeong-ro, Yuseong-gu, Daejeon 305-600, Republic of Korea

<sup>b</sup>Department of Chemical Engineering, Kyung Hee University, Yongin-si, Kyunggi-do 446-701, Republic of Korea

## **Supporting Figures**



Fig. S1 Plots of average particle sizes of Au-Ag nanostructures (black squares) and Au contents in the Au-Ag nanostructures (red squares) as a function of added amount of aqueous HAuCl4 solution.



Fig. S2 TEM images of thin Ag nanoplates used in the galvanic replacement reaction (scale bar = 400 nm). The inset is SEM image taken from samples in which the nanoplates were oriented vertically on the substrate (scale bar = 100 nm).



Fig. S3 The EDX spectrum of highly porous Au nanostructures on a silicon wafer substrate.