

A facile aqueous route for synthesis of Ag-Metal (Cu, Pt, and Pd) nanoparticle

Zengmin Tang, 유태경, 김우식†

경희대학교

(wskim@khu.ac.kr†)

Multi-metallic nanoparticles including bi- and tri- metallic have been considered as a new category of attractive advanced materials due to their enhanced catalytic properties compared with their individual components. In this report, a facile aqueous synthetic route was introduced to fabricate Ag-metal nanoparticle, including Ag-Cu, Ag-Pt, Ag-Pd, and Ag-Pt-Cu metallic nanoparticle. In the syntheses, simple mixing silver nitrate solution with the other metal precursor solution in the presence of branched polyethyleneimine (BPEI), and reacting with ascorbic acid solution for 10 min under the temperature of 80 °C, finally spherical Ag-metal nanoparticles with 20-30 nm were synthesized. Moreover, through regulating the ratio of two metal precursor, the component of products also could be controlled. This common synthetic route provides a simple operation, fast reaction, water-phase of condition to synthesize Ag-metal nanoparticles.