

Chemical design of Cu based Nanocrystals

우호영, 김민혜, 이동욱, 백태종[†]
중앙대학교
(paiktae@cau.ac.kr[†])

Colloidal nanocrystals are widely used in various applications such as optics, plasmonic, catalysts, electronic devices, phosphors, and magnetics. Among them, highly uniform metal nanocrystals, for example gold, silver, and copper, have been intensively studied due to their unique optical, electronic, and catalytic properties varied with size, shape, and compositions. In this work, we describe shape control synthesis of highly uniform copper nanocrystals. By changing the reaction parameters, we are able to synthesize the copper nanocrystals in different shapes such as nanospheres, nanowires, nanotriangles, and nanocubes. We also present Cu-Pt core-shell nanocrystals through electroless plating. We can change the structure, dispersibility and composition of Cu-Pt nanocrystals through surface ligand exchange. We measure the structure, composition and electrochemical properties of as-prepared nanocrystals to understand their size and shape dependent physical properties.