

## Metal assisted chemical etching of silicon and solution synthesis of Cu<sub>2</sub>O/Si radial nanowire array heterojunctions

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Cu<sub>2</sub>O/Si radial nanowire (NWs) array heterojunctions were prepared by depositing Cu<sub>2</sub>O nanoparticles via chemical bath deposition on *n*-Si nanowire arrays that were fabricated by metal-assisted electroless etching. After 20 cycles of deposition, large numbers of Cu<sub>2</sub>O nanoparticles with form shells that wrap the upper segment of each Si nanowire. This method of etching offers exceptional simplicity, flexibility, environmental friendliness, and scalability for the fabrication of three-dimensional silicon nanostructures with considerable depths, because of replacement of harsh oxidants such as H<sub>2</sub>O<sub>2</sub> and AgNO<sub>3</sub>.

**Keywords:** Cu<sub>2</sub>O/Si NWs heterojunctions, Cu<sub>2</sub>O nanoparticles, metal-assisted electroless etching.

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