

Abstract Submitted  
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**Facile synthesis of cuprous oxide nanoparticles by plasma electrochemistry**<sup>1</sup> QIANG CHEN, Fujian Provincial Key Laboratory of Plasma and Magnetic Resonance, Institute of Electromagnetics and Acoustics, Xiamen University, Xiamen 361005, China, JIANDI LIU, Fujian Provincial Key Laboratory of Plasma and Magnetic Resonance, Xiamen University, Xiamen 361005, China, GUANGHUI YUE, Fujian Key Laboratory of Advanced Materials, College of Materials, Xiamen University, Xiamen 361005, China — Cuprous oxide nanoparticles were synthesized by plasma electrochemistry. In the plasma electrochemistry system, plasma was contacted with the solution as one electrode and a Cu plate immersed in the solutions as the counter electrode. NaCl solution was used as the basic electrolyte and glucose was added as a reaction mediator and/or a reducing agent. The plasma created many reducing and oxidizing species which can react with the Cu ions released from the Cu plate in the solution. Cu<sub>2</sub>O nanoparticles with an average diameter of about 30 nm were formed under the competition of reducing and oxidizing reactions. The results show that the concentration of added glucose strongly affects the properties of the products. Corresponding to high, medium and low concentrations of glucose, the products were, respectively, nanoparticles of amorphous Cu<sub>2</sub>O, polycrystalline Cu<sub>2</sub>O, and a mixture of polycrystalline Cu<sub>2</sub>O and Cu<sub>2</sub>Cl(OH)<sub>3</sub>.

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