

Multimetallic Mesoporous Spheres through Surfactant-Directed Synthesis

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We have successfully synthesized multimetallic mesoporous spheres with ultra-large mesopores with assistance of nonionic triblock copolymer (F127) as a structural directing agent. The kinetically controlled reduction rate of metal species and the concentration of F127 are critical to the formation of the large mesopores. The particle size of mesoporous bimetallic PdPt spheres can be easily tuned by changing the compositional ratios of metal sources. The as-prepared mesoporous bimetallic PdPt spheres exhibited higher electrocatalytic activity than that of commercial PtB. Recently, enhanced electrocatalytic performance of trimetallic nanostructure has been widely reported, owing to the electronic effect by introduction of a third element. Therefore, a highly enhanced electrocatalytic activity is expected to introduce to our enlarged mesoporous constructions by simply incorporating a third element (**Fig. 1**). Our mesoporous trimetallic spheres exhibited a higher electrochemical activity and durability for methanol oxidation reaction.

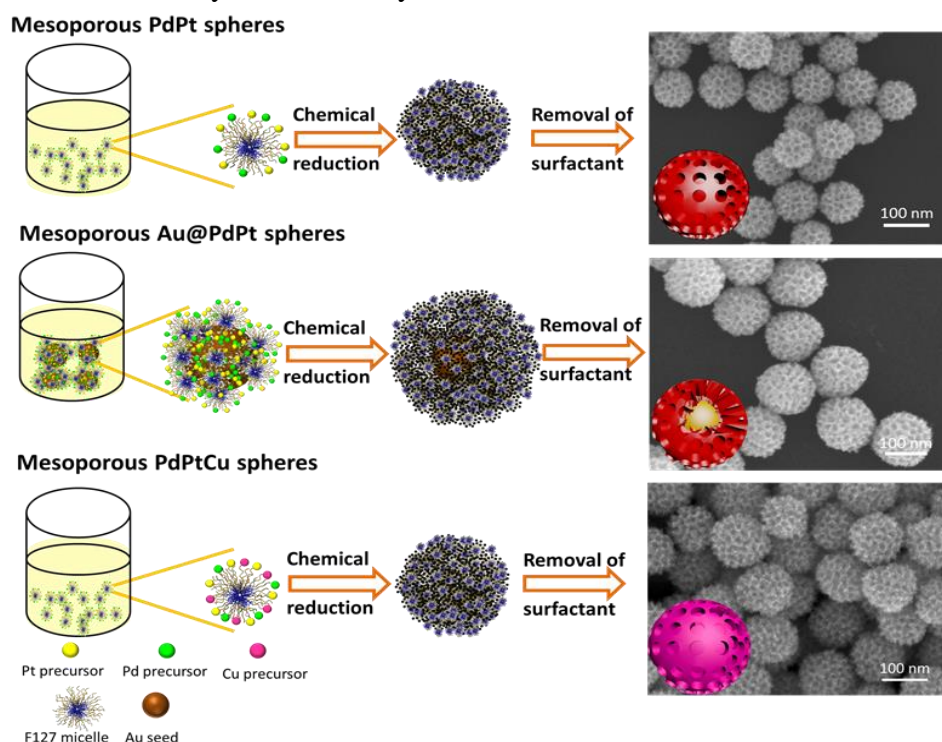


Fig. 1 Systematic illustration of mesoporous bimetallic PdPt spheres, mesoporous trimetallic Au@PdPt spheres, and mesoporous trimetallic PdPtCu spheres.

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