

## Microfluidic synthesis of palladium nano-catalysts for carbon-carbon coupling reaction

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Palladium (Pd) nanoparticles have been used in various catalytic reactions such as hydrogenation, dehydrogenation, and carbon-carbon coupling reactions. In catalytic reactions, development of nano-catalyst with narrow size distribution is essential to perform selective chemical reaction and obtain desired product. To fabricate monodisperse nanoparticles, droplet microfluidics have been widely used. The micron-scale of droplet and channel can provide identical chemical environment in every droplet, high thermal diffusivity, mass diffusivity, and mixing property to synthesize the monodisperse nanoparticle. Easy reaction control and small amount of required reagent are another advantages of chemical reactions in microfluidic device. Herein, Pd nano-catalysts for carbon-carbon coupling reaction with narrow size distribution were synthesized by flow-focusing droplet generation device. Microfluidic device in the study was prepared by typical photolithography and soft lithography. Synthesized Pd nanoparticles were characterized by FE-SEM to examine the size and morphology of particles.