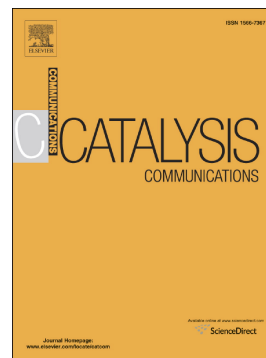


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Understanding the Effect of Polydopamine Coating on Catalytic Reduction Reactions

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Abstract

The polydopamine (PDOP) layer with varying thicknesses has been deposited on the vertical aligned silicon nanowire (SiNW) arrays by manipulating the PDOP deposition time. It is interestingly found that catalysis ability of PDOP layer does not only depend on its thickness but also the morphology of the support material. In addition to these, by growing gold nanoparticles on PDOP coated SiNWs, catalytic reduction reactions were investigated in the presence of laser illumination having different wavelengths. We observed that, in the presence of laser illumination with a proper wavelength, catalytic conversion is about 12-fold faster than that of the catalytic process which was carried out in the absence of laser illumination.

Keywords: Silicon Nanowires; Polydopamine; Catalysis; Plasmonic Catalysis

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