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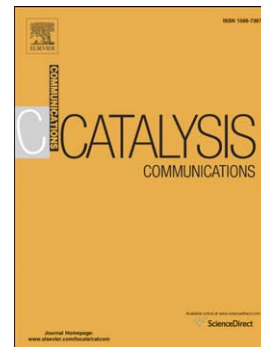
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# Fabrication of highly dispersed Pd nanoparticles supported on reduced graphene oxide for catalytic reduction of 4-nitrophenol

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**Abstract:** Well-dispersed and ultrafine metal nanoparticles can significantly improve the catalytic performance of heterogeneous catalyst. In this paper, highly dispersed Pd nanoparticles were successfully anchored on reduced graphene oxide using a co-deposition and sacrificial method, in which cobalt was used as the sacrificial agent. This method can effectively prevent the Pd nanoparticles from aggregation, and the resulted catalyst exhibited exceedingly high catalytic activity for the reduction of 4-nitrophenol at room temperature with NaBH<sub>4</sub> as hydrogen resource. The turnover frequency reaches 9900 h<sup>-1</sup> at 298 K, which is among the highest values ever reported thus far for heterogeneously catalyzed reduction of 4-nitrophenol under ambient conditions.

**Keywords:** Pd nanoparticles; reduced graphene oxide; sacrificial method; *p*-nitrophenol; catalytic reduction

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