

**Combination of Hollow Fluorescent Carbon and Gold Nanoparticles: A
Super-Catalyst**

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A special catalyst has been developed based on the catalytic properties of hollow carbon and gold nanoparticles. We have observed that the hollow CNPs can reduce chloroauric acid to form Au NPs in situ. This method produces Au NP@HFCN composite that yielded a catalyst for reduction of 4-NP to 4-AP with substantially high pseudo-unimolecular rate. Moreover, the Au NP@HFCN NPs are more beneficial in terms of cost as it requires lesser amount of gold to reduce same amount of 4-NP. The in situ produced gold nanoparticle-impregnated-hollow carbon nanoparticle massively enhances the rate of reduction of 4-nitrophenol in presence of sodium borohydride and proves to be an extremely efficient catalyst.