Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supplementary materials

Functionalized Graphene/Fe_3O_4 Supported AuPt alloy as a Magnetic, Stable and Recyclable Catalyst for Catalytic Reduction Reaction

Wenling Gu,[ab] Xi Deng,[a] Xiaofang Jia,[ab] Jing Li*[a] and Erkang Wang*[a]

[a]State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, Jilin 130022, PR China;

[b]University of the Chinese Academy of Sciences, Beijing, 100049, PR China

Corresponding author: Prof. Erkang Wang, Associate Prof. Jing Li, Tel: +86-431-85262003, Fax: +86-431-85689711, Email: ekwang@ciac.ac.cn and lijingce@ciac.ac.cn

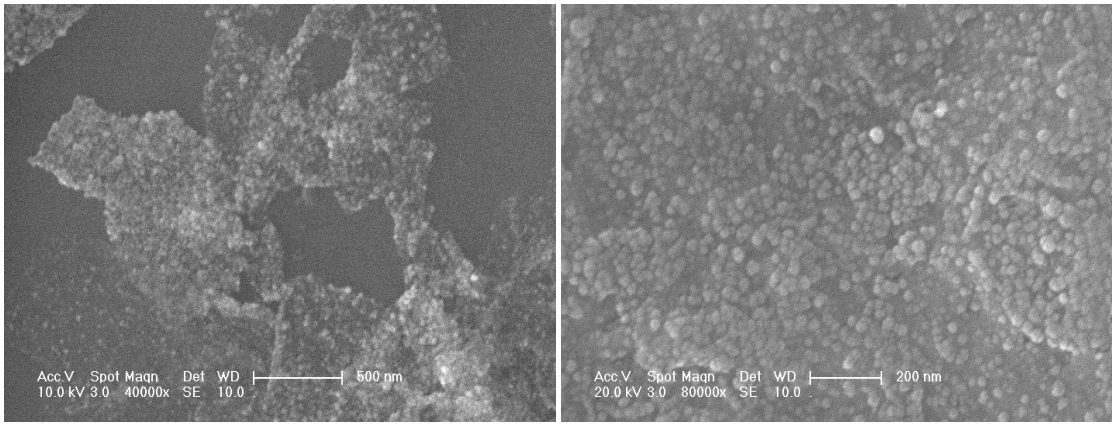

Fig. S1 SEM image of the nanocarrier of BGNs/Fe_3O_4 at different magnifications.

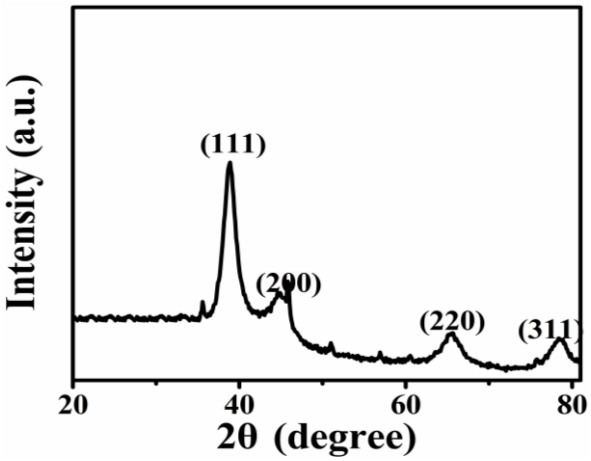

Fig. S2 XRD spectra of $Au_{0.3}Pt_{0.7}$ alloy nanoparticles.

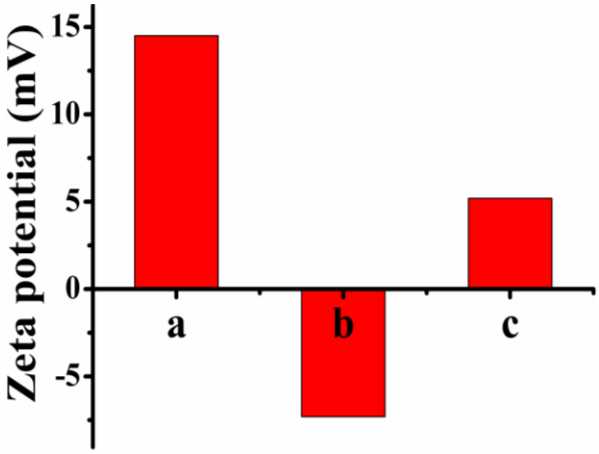

Fig. S3 The zeta potential values of (a) BGNs/Fe_3O_4, (b) $Au_{0.3}Pt_{0.7}$ alloy nanoparticles and (c) the multifunctional nanocatalyst of $Au_{0.3}Pt_{0.7}$@BGNs/Fe_3O_4.

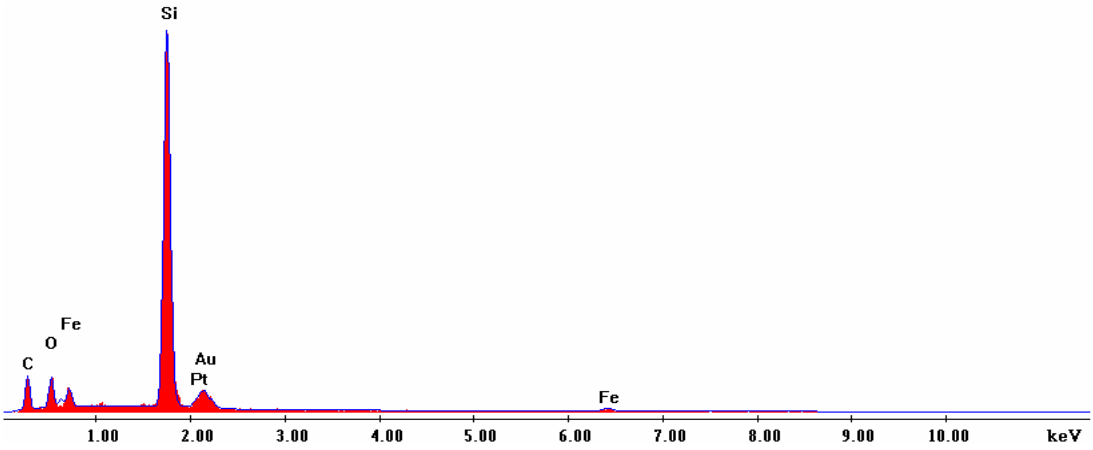

Fig. S4 The EDX spectrum of $Au_{0.3}Pt_{0.7}$@BGNs/Fe_3O_4.

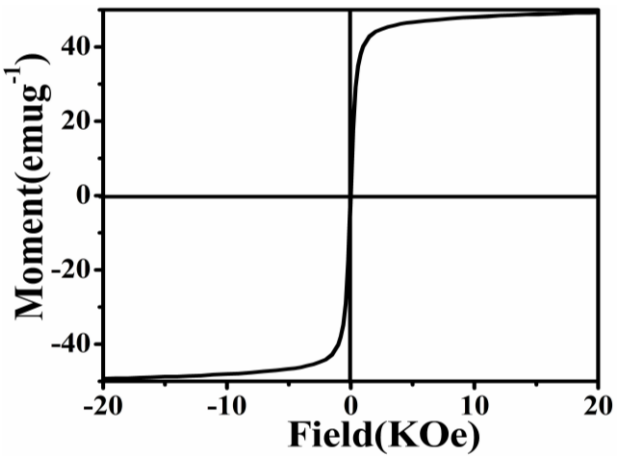

Fig. S5 Magnetization curves of the support materials of BGNs/Fe_3O_4.

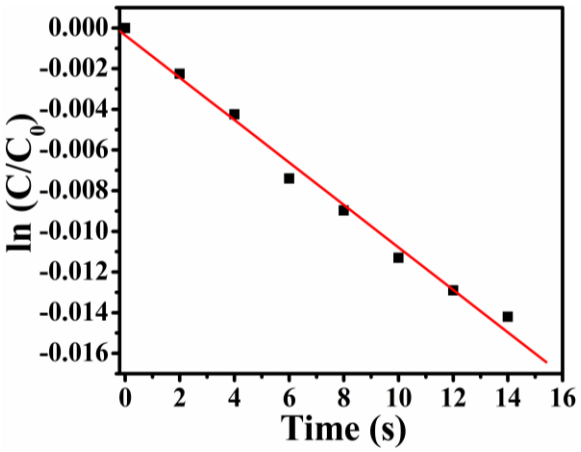

Fig. S6 Plots of $\ln(C/C_0)$ against reaction time for the reduction of 4-NP only with Fe_3O_4 nanoparticles.

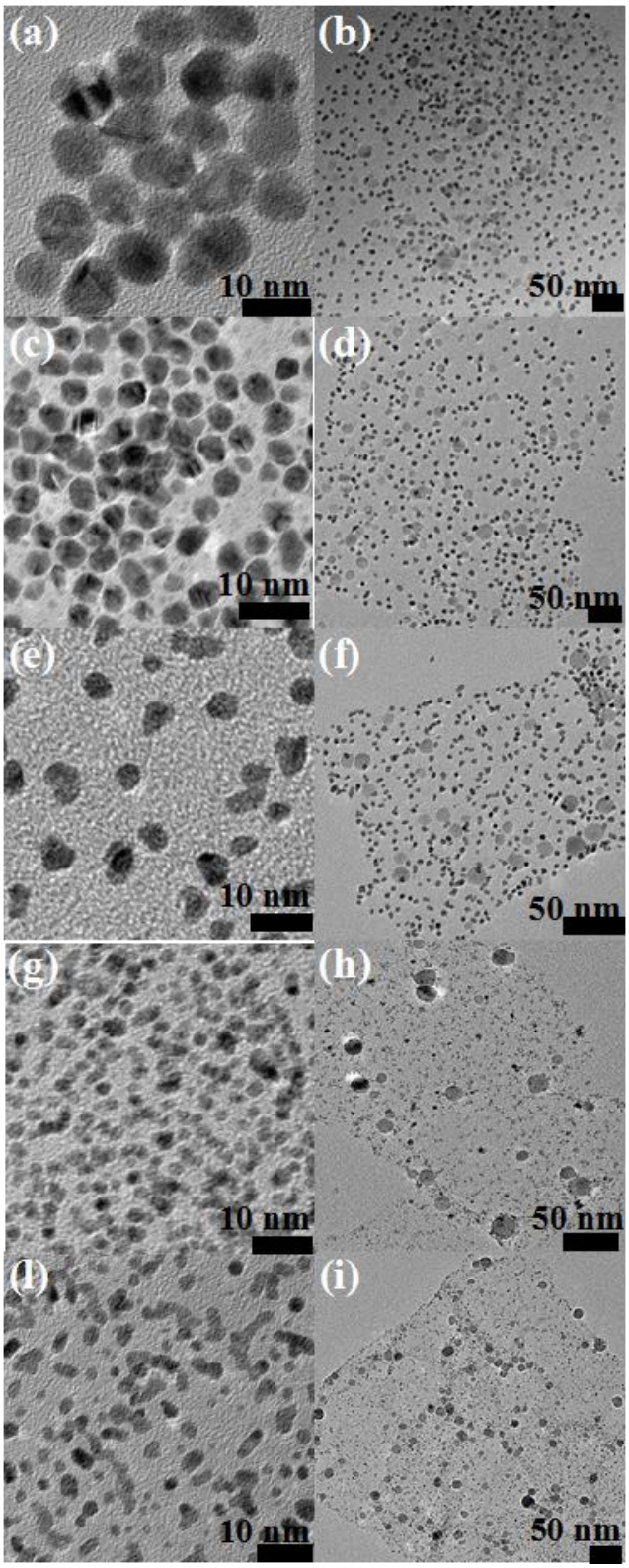

Fig. S7 TEM images of different composites of AuPt alloy nanoparticles (a:$Au_{0.8}Pt_{0.2}$, c:$Au_{0.7}Pt_{0.3}$, e:$Au_{0.5}Pt_{0.5}$, g:$Au_{0.3}Pt_{0.7}$ and l:$Au_{0.2}Pt_{0.8}$) and different composites of AuPt alloy nanoparticles were assembled on the surface of BGNs/Fe_3O_4 (b:$Au_{0.8}Pt_{0.2}$@BGNs/Fe_3O_4, d:$Au_{0.7}Pt_{0.3}$@BGNs/Fe_3O_4, f:$Au_{0.5}Pt_{0.5}$@BGNs/Fe_3O_4, h:$Au_{0.3}Pt_{0.7}$@BGNs/Fe_3O_4 and i:$Au_{0.2}Pt_{0.8}$@BGNs/Fe_3O_4).