Electronic Supplementary Material (ESI) for Dalton Transactions.

Ni-Pt nanoparticles growing on metal organic frameworks (MIL-96) with enhanced catalytic activity for hydrogen generation from hydrazine at room temperature

Lan Wen,[a] Xiaoqiong Du,[a] Jun Su,[c] Wei Luo,*[a,b] Ping Cai*[a] and Gongzhen Cheng[a]

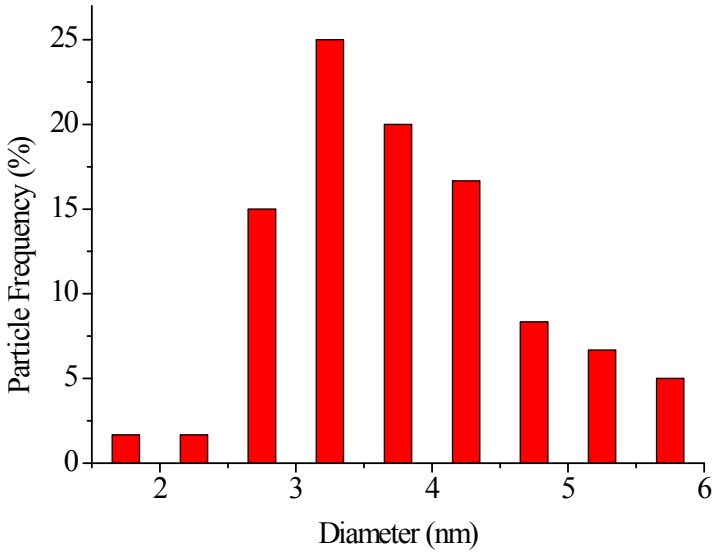

Figure. S1 $Ni_{64}Pt_{36}$ nanoparticle size distribution histogram of $Ni_{64}Pt_{36}$/MIL-96, Mean size= 3.2 nm.

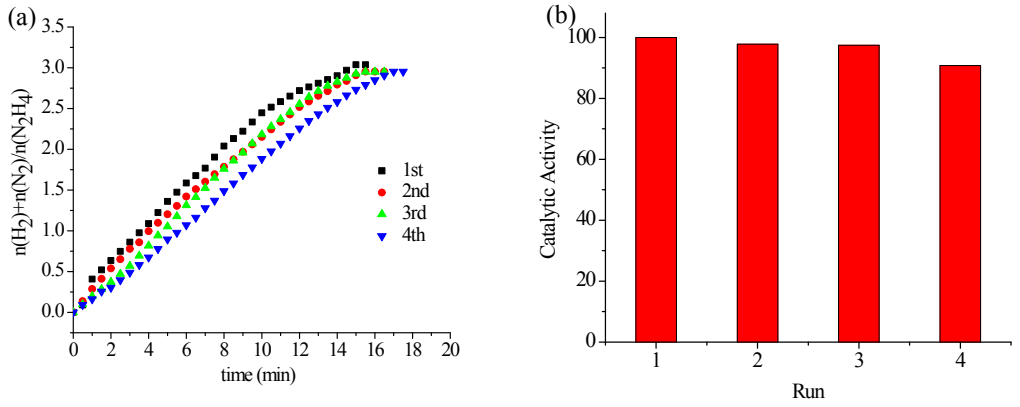

Figure. S2 (a) reusability test of $Ni_{64}Pt_{36}$/MIL-96 for decomposition of hydrazine in aqueous NaOH solution (0.5 M) at 25 °C (catalyst = 0.100 g; $N_2H_4 \cdot H_2O$ = 0.1 mL). (b) Percentage of initial catalytic activity of $Ni_{64}Pt_{36}$/MIL-96 in successive runs after recycling by centrifugal separation.

Table S1 - ICP-AES results of different catalysts.

Catalyst	$Ni_{95}Pt_5$	$Ni_{81}Pt_{19}$	$Ni_{64}Pt_{36}$	$N_{42}iPt_{58}$	$Ni_{15}Pt_{85}$
Ni-Pt initial composition for preparation of catalyst	$Ni_{90}Pt_{10}$	$Ni_{70}Pt_{30}$	$Ni_{50}Pt_{50}$	$Ni_{30}Pt_{70}$	$Ni_{10}Pt_{90}$
Ni (wt%)	7.5	5.9	4	1.8	0.8
Pt (wt%)	1.4	4.6	7.3	8.6	14.9

Table S2 - Pore volume and surface area of MIL-96 and $Ni_{64}Pt_{36}$/MIL-96

Sample	wt%	Surface Area(m^2/g)	Pore volume(cm^3/g)
MIL-96	—	263	0.182
$Ni_{64}Pt_{36}$/MIL-96	11.3	153	0.096