Supplementary Information

Controlling and stabilization of Ru nanoparticles by tuning the nitrogen content of the support for enhanced H$_2$ production through aqueous phase reforming of glycerol

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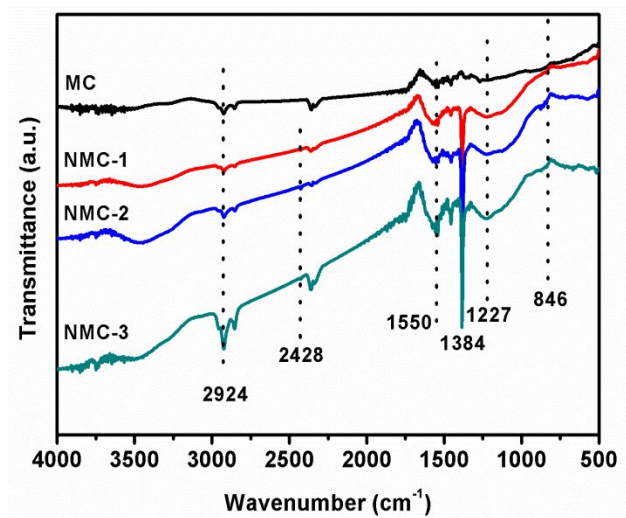
*E-mail:t.raja@ncl.res.in (Thirumalaiswamy Raja)
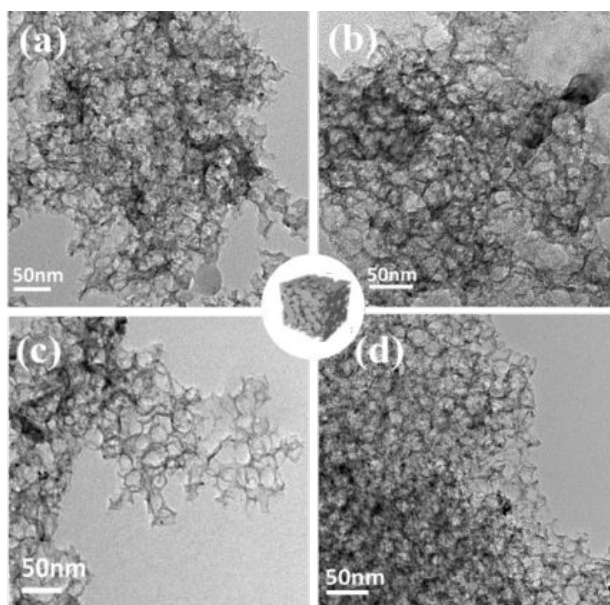
Figure S1. FTIR spectra of NMCs.

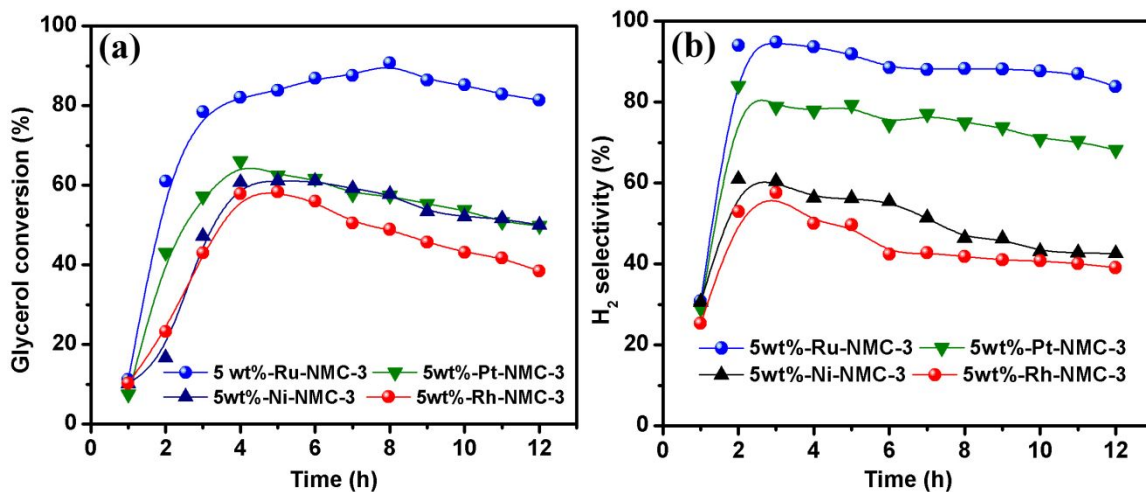**Figure S2.** TEM images of (a) MC (b) NMC-1(c) NMC-2 (d) NMC-3.

Figure S3. Comparison of (a) Glycerol conversion and (b) H$_2$ selectivity with time over different metal supported catalysts.
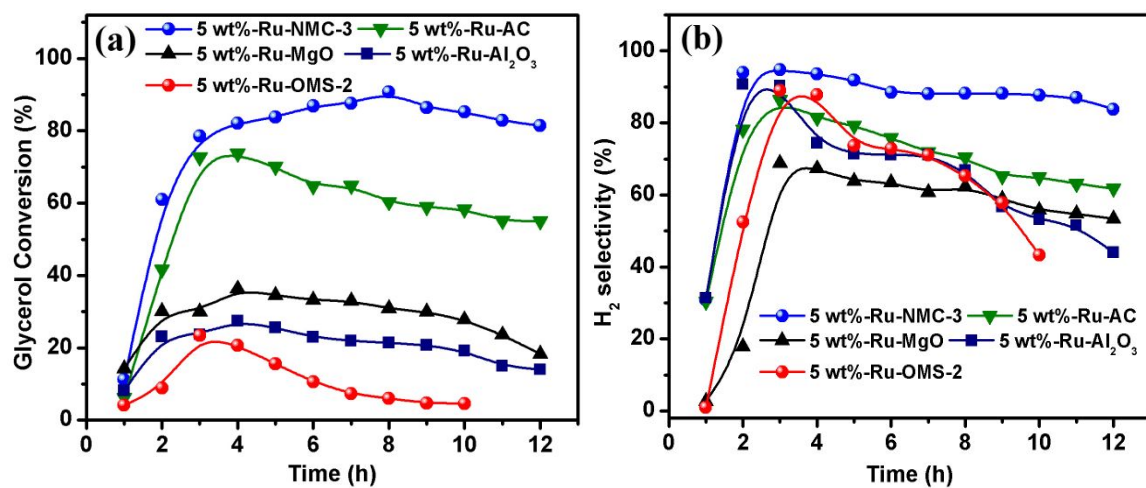

Figure S4. Comparison of (a) Glycerol conversion and (b) H$_2$ selectivity with time over different supported catalysts.
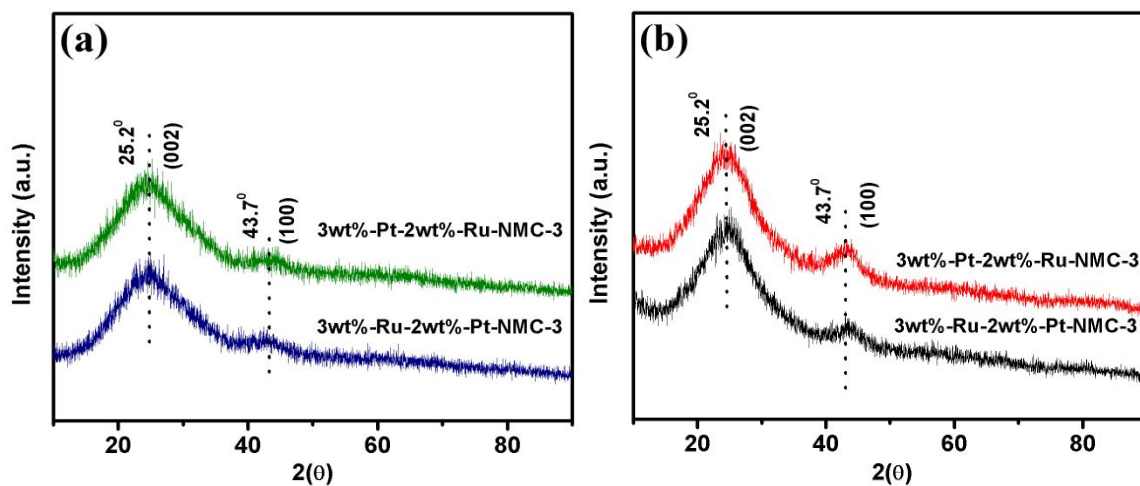
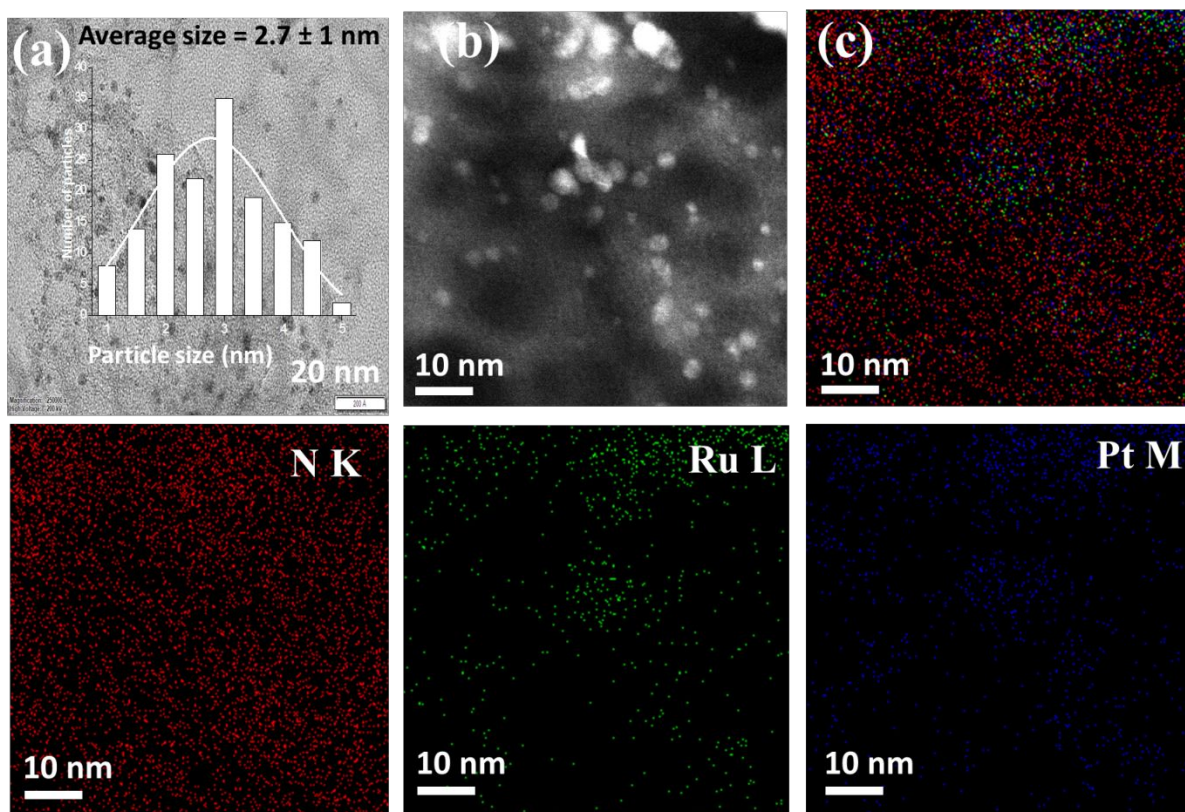**Figuhre S5:** XRD pattern of (a) fresh catalysts (b) spent catalysts.

Figure S6:(a)HRTEM micrograph and (b)STEM HADAF image (c) elemental mapping of spent 3%Ru-2%Pt-NMC-3.

Table.S1 Porosity, BET surface area, Ru content of the spent catalysts				
Sample	BET surface area (m^2/g)[a]	Total pore volume[a] (cc/g)	Micropore volume (cc/g)	Ru Metal content (wt%)[b]
5%wt Ru-MC	560	0.4	0.1	4.7
5%wt Ru-NMC-1	692	0.9	0.07	4.76
5%wt Ru-NMC-2	791	1.1	0.06	4.8
5%wt Ru-NMC-3	780	1.0	0.03	4.8
[a] Total pore volume at $P/P_0= 0.9$, [b] ICP-OES				