Electronic Supplementary Material (ESI) for RSC Advances.

Selective hydrogenation of levulinic acid to γ-valerolactone over Ru/Mg-LaO catalyst

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Table S1. CO Chemisorption studies of different Ru catalysts

Entry	Catalyst	Metal dispersion (%)	Metal surface area (m^2/g) sample/metal
1	RMO	1.4	0.3356/6.8
2	RMA	1.6	0.375/8.175
3	RML	1.7	0.4/8.7

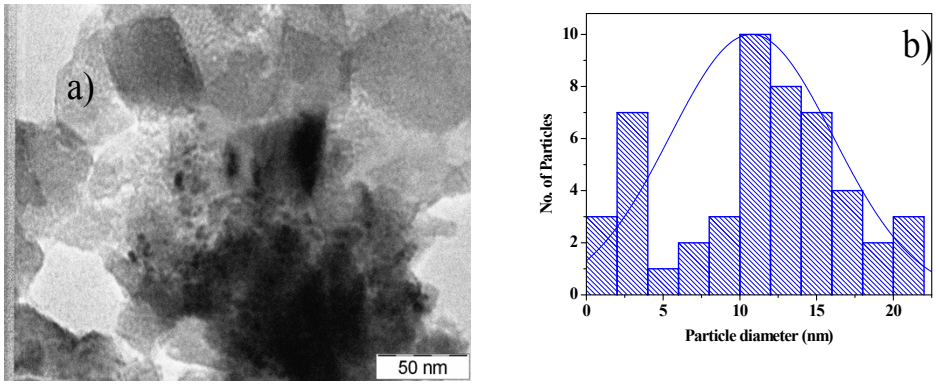

Figure S1. TEM images of a) reduced Ru/MgO, b) particle analysis (avg. particle size ~12 nm)

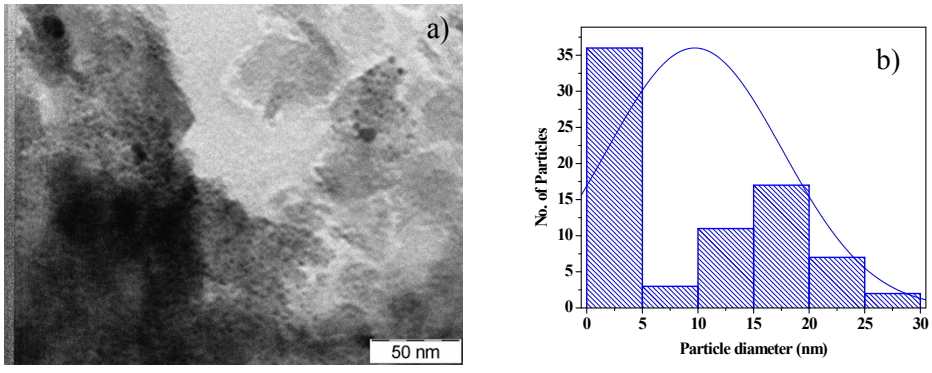

Figure S2. TEM images of a) reduced Ru/MgAlO, b) particle analysis (avg. particle size ~10nm)

The normalized rate is calculated as per the formula

$$\text{Rate} = \frac{\text{Fractional yield} \times [\text{Substrate}]_{\text{moles}} \times [\text{Room Temperature}]_{\text{Kelvin}} \times 1}{[\text{Catalyst}]_{\text{moles}} \times [\text{Reaction Temperature}]_{\text{Kelvin}} \times [\text{Pressure}]_{\text{bar}}} \quad 1$$

$$\text{Yield} = \frac{\text{Conversion} \quad X \quad \text{Selectivity}}{100} = Y$$

Fractional Yield = Y / 100