Supporting Information

Sol-Gel Synthesis for Size and Shape-Controlled Metal Oxide Nanostructures

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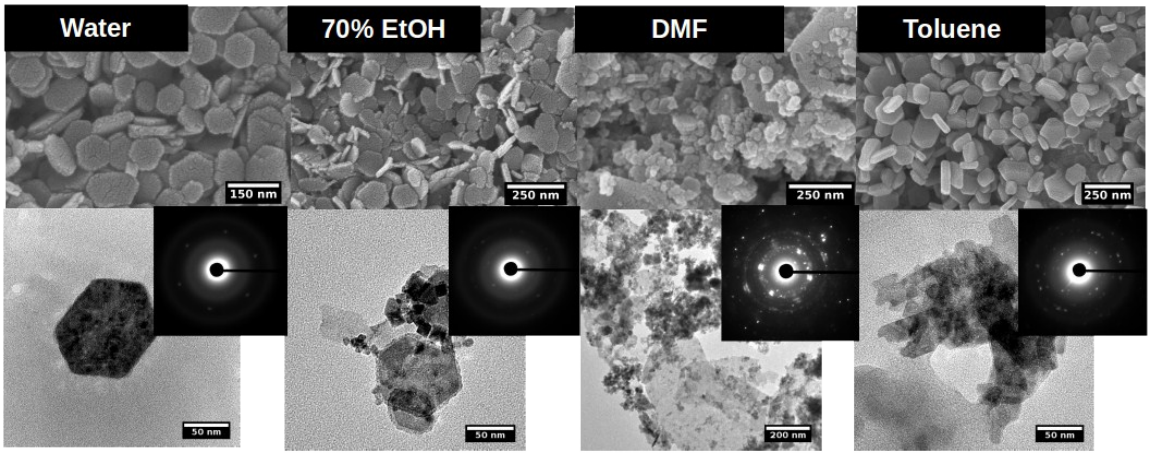

Figure S1: Mn_3O_4 SEM (top), TEM (down) and SAED pattern of manganese oxide nanostructures formed in each different solvent system at the molar ratio of precursor to base 1:10.

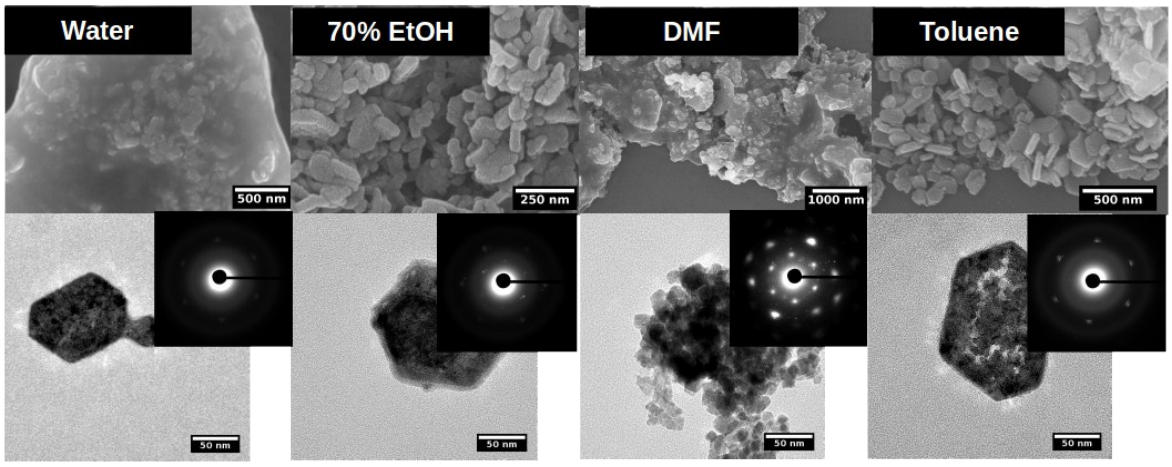

Figure S2: Mn_3O_4 SEM (top), TEM (down) and SAED pattern of manganese oxide nanostructures formed in each different solvent system at the molar ratio of precursor to base 1:15.

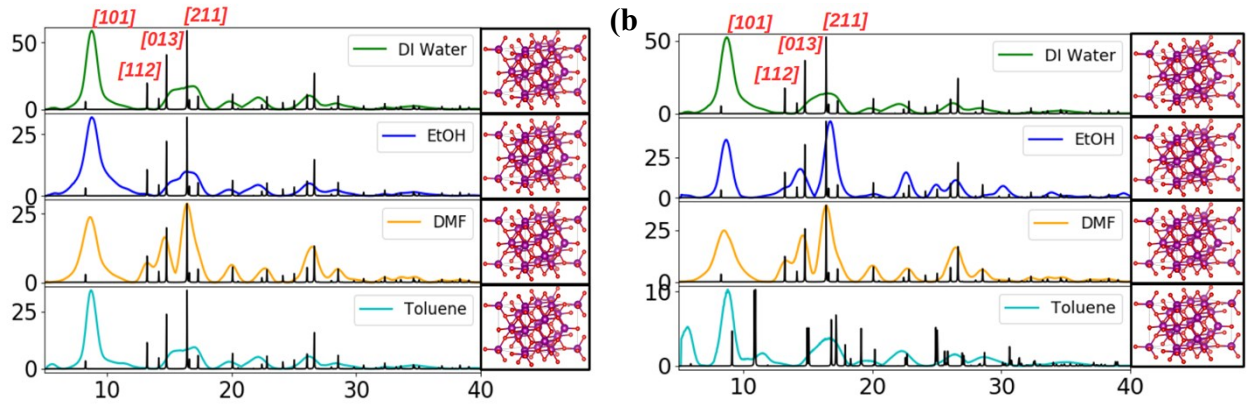

Figure S3: Mn_3O_4 XRD pattern of manganese oxide nanostructures formed in each solvent system at a molar ratio of precursor to base of: (a) 1:10, and (b) 1:15 with the unit cell structure – triclinic.

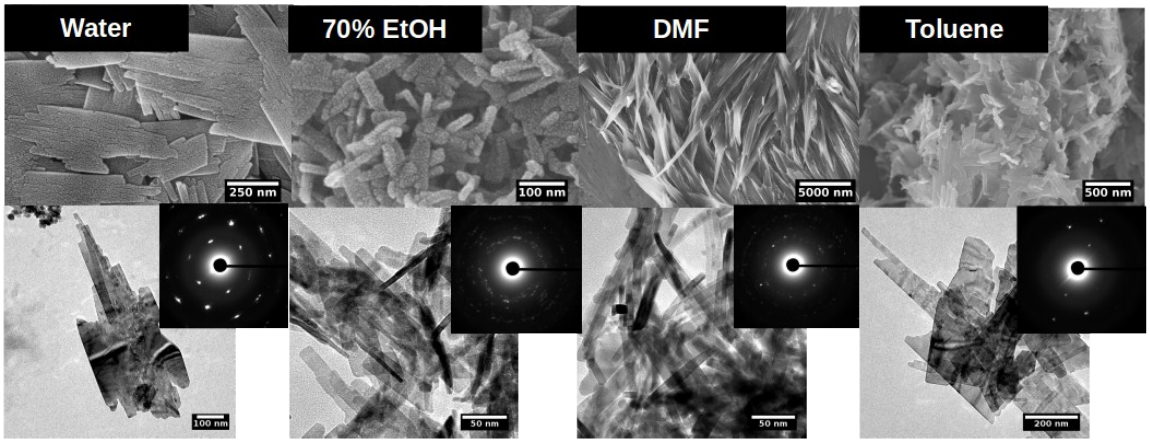

Figure S4: CuO SEM (top), TEM (down) and SAED pattern of copper oxide nanostructures formed in each different solvent system at the molar ratio of precursor to base 1:10.

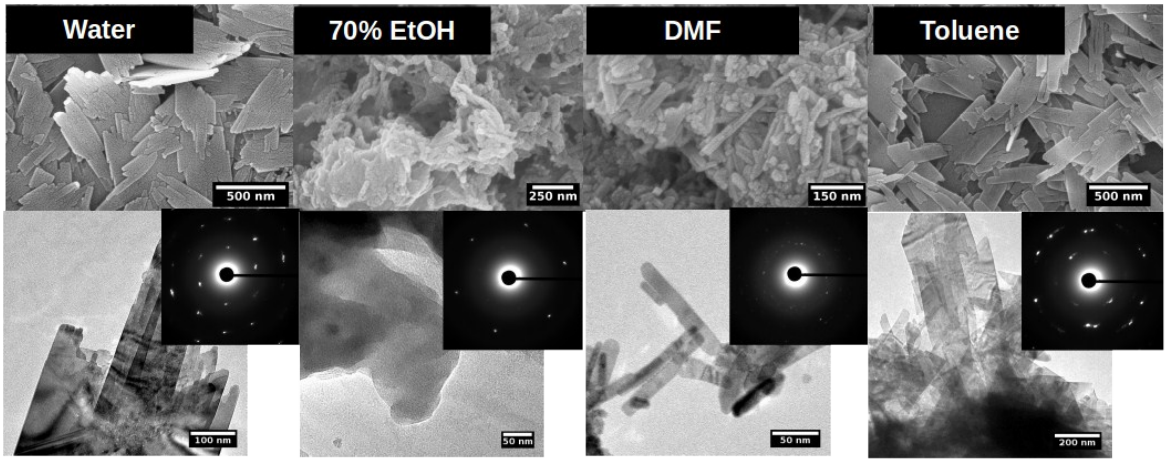

Figure S5: CuO SEM (top), TEM (down) and SAED pattern of copper oxide nanostructures formed in each different solvent system at the molar ratio of precursor to base 1:15.

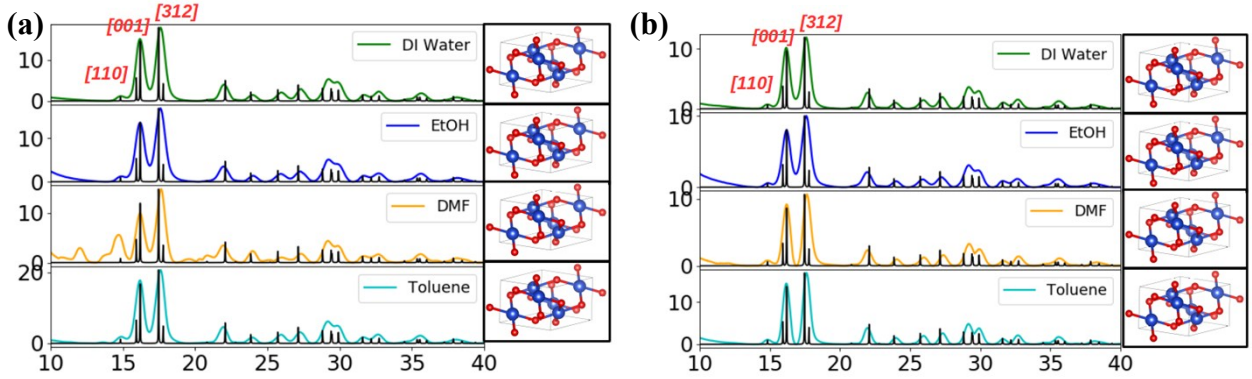

Figure S6: CuO XRD pattern of copper oxide nanostructures formed in each solvent system at a molar ratio of precursor to base of: (a) 1:10, and (b) 1:15 with the unit cell structure - Monoclinic.

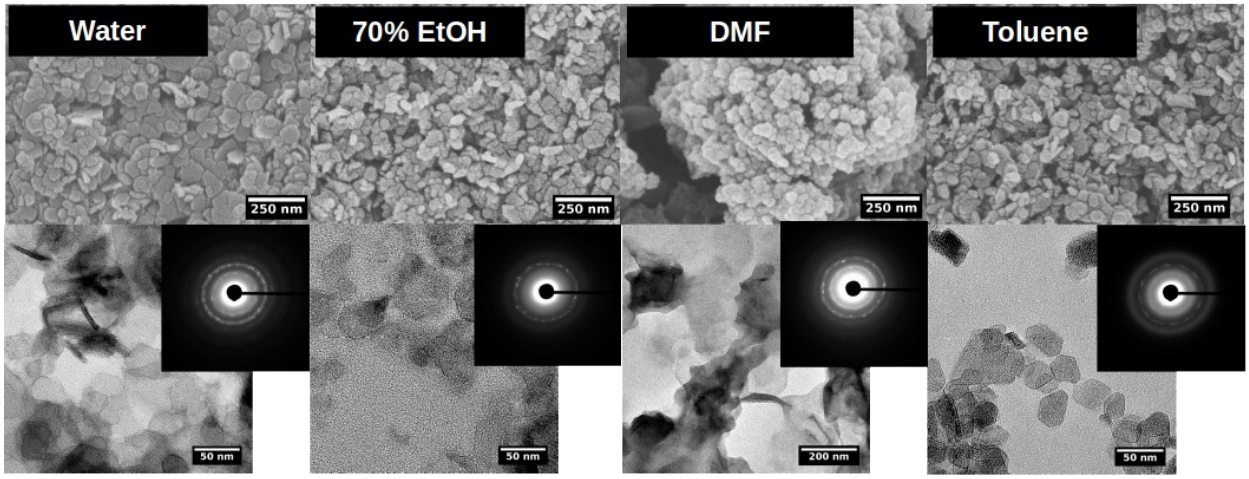

Figure S7: $Mg(OH)_2$ SEM (top), TEM (down) and SAED pattern of magnesium hydroxide nanostructures formed in each different solvent system at the molar ratio of precursor to base 1:10.

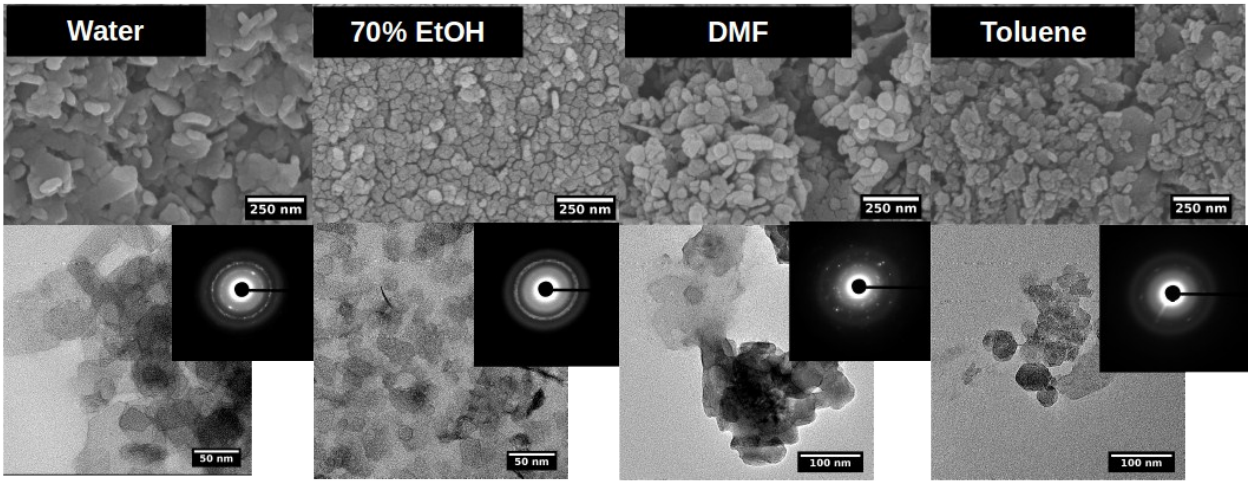

Figure S8: $Mg(OH)_2$ SEM (top), TEM (down) and SAED pattern of magnesium hydroxide nanostructures formed in each different solvent system at the molar ratio of precursor to base 1:15.

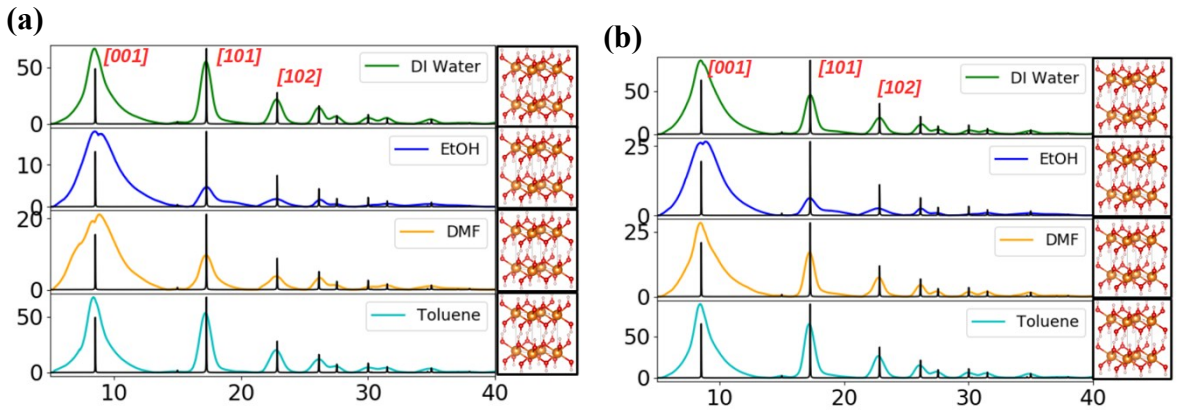

Figure S9: $Mg(OH)_2$ XRD pattern of magnesium hydroxide nanostructures formed in each solvent system at a molar ratio of precursor to base of: (a) 1:10, and (b) 1:15 with the unit cell structure - trigonal.

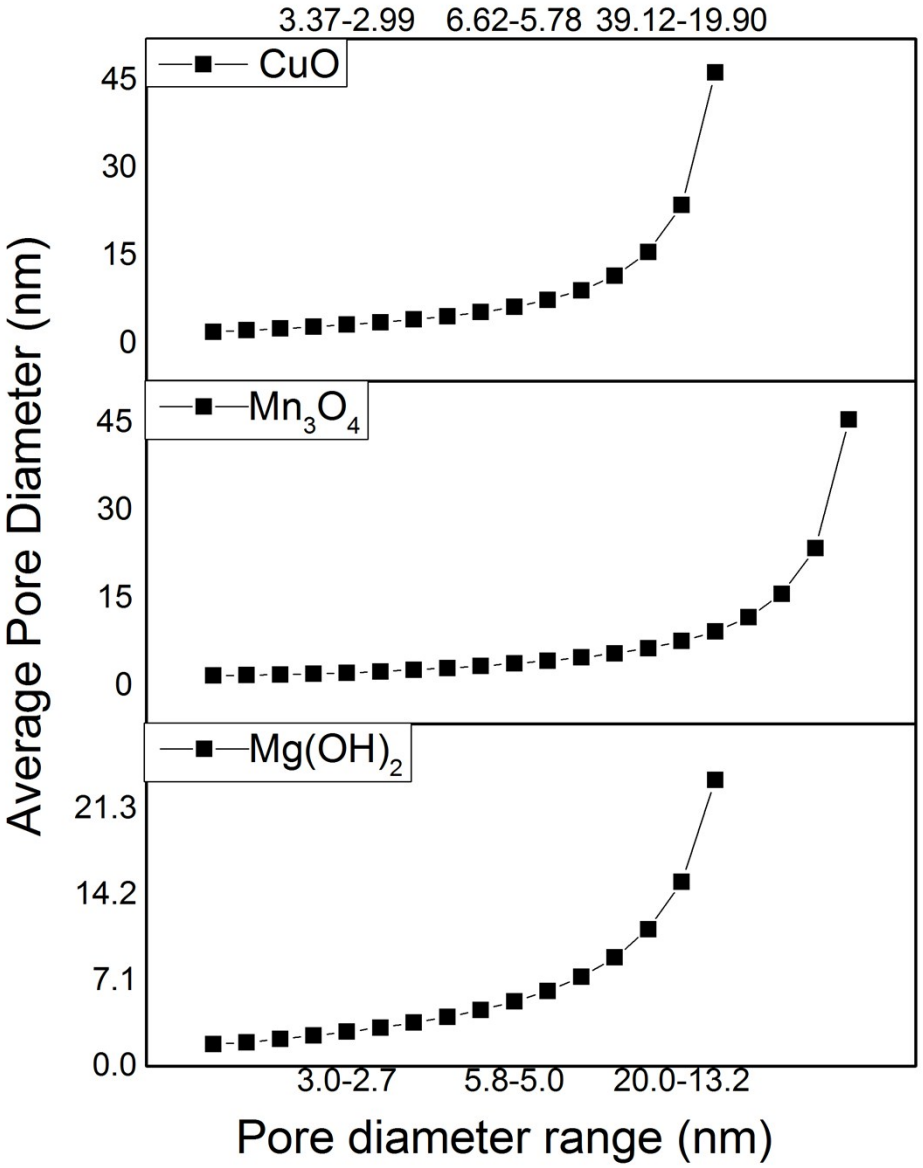

Figure S10: BHJ desorption average pore diameter distribution graphs of Mn_3O_4, CuO, and $Mg(OH)_2$ nanostructures prepared at 1:10 molar ration of the precursor to the base concentration in water and toluene respectively.

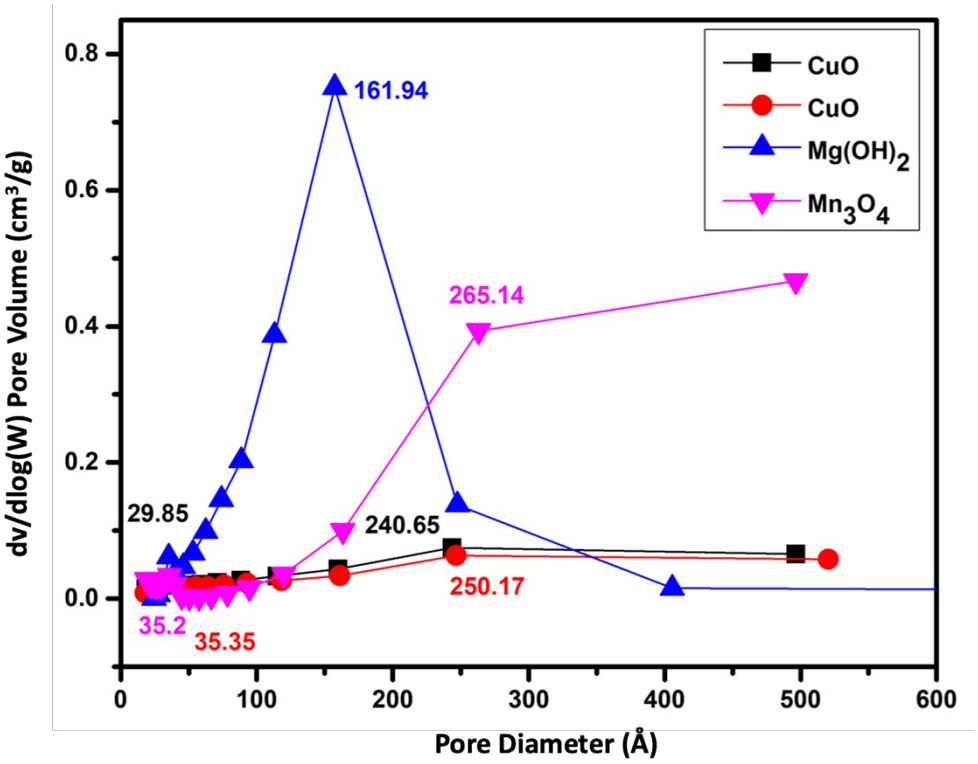

Figure S11: The comparison graph of BHJ desorption pore volume distribution with respect to average pore diameter of Mn_3O_4, CuO, and $Mg(OH)_2$ nanostructures prepared at 1:10 molar ration of the precursor to the base concentration in water and water/toluene respectively.