

Supporting Information**Ionic Conductivity, Mechanical Strength and Li-ion Battery Performance of Mono-functional and Bi-functional (“Janus”) “Soggy Sand” Electrolytes**Shymal K. Das,^a Soumit S. Mandal and Aninda Jiban Bhattacharyya^{*a}

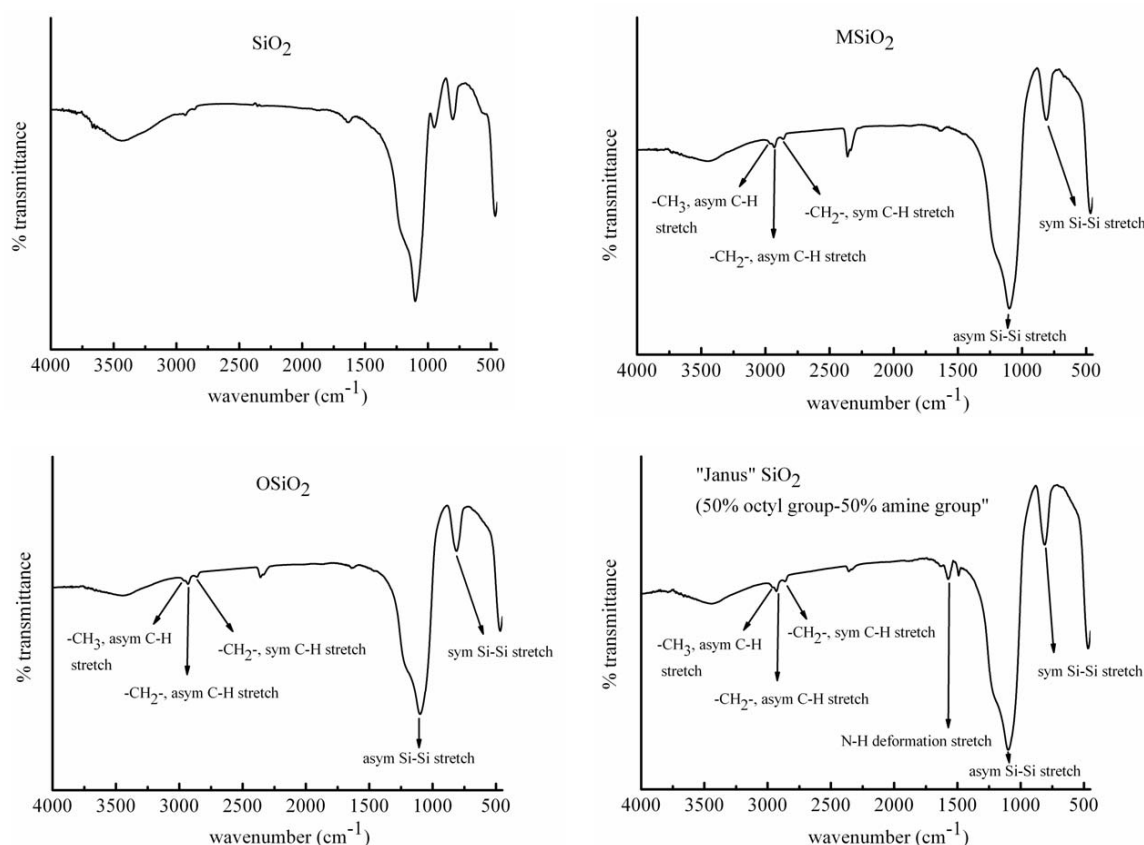
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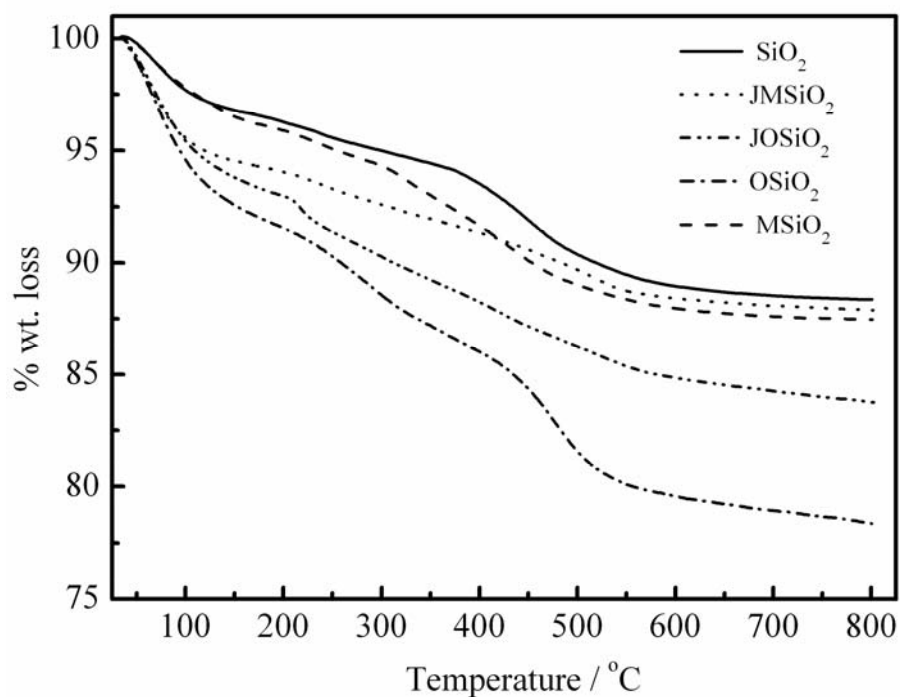
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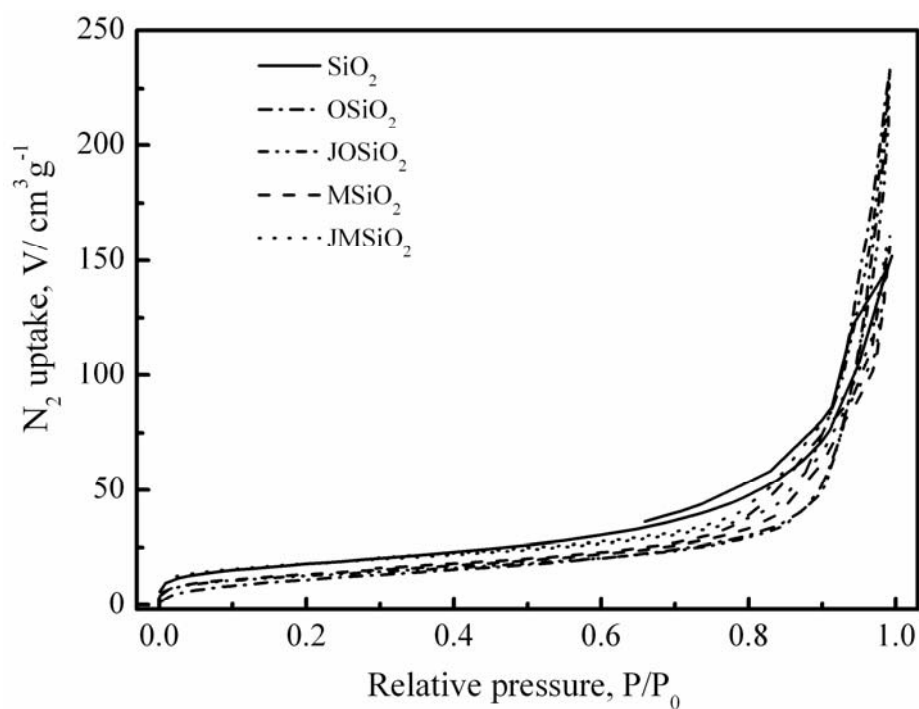
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Supporting Figure 1: Fourier transform infrared spectroscopy (FTIR) of various silica particles. (SiO₂: “Stöber” particles, MSiO₂: methyl capped SiO₂, OSiO₂: octyl capped SiO₂). In order to check the “Janus” nature of the synthesized particles, functionalization of the opposite hemispheres of SiO₂ by 50% octyl group and 50% amine group is done according to the procedure described in experimental section. The simultaneous presence of various C-H stretching and N-H stretching in the FTIR spectra signifies successful synthesis of “Janus” SiO₂.



Supporting Figure 2: Thermogravimetry analysis (TGA) of various silica particles in the temperature range (25- 800) °C (under O₂ atmosphere; heating rate= 5 °Cmin⁻¹). (SiO₂: “Stöber” particles, MSiO₂: methyl capped SiO₂, OSiO₂: octyl capped SiO₂, JMSiO₂: methyl capped “Janus” particles, JOSiO₂: octyl capped “Janus” particles).



Supporting figure 3: N₂ adsorption/desorption isotherms of various silica particles. (SiO₂: “Stöber” particles, MSiO₂: methyl capped SiO₂, OSiO₂: octyl capped SiO₂, JMSiO₂: methyl capped “Janus” particles, JOSiO₂: octyl capped “Janus” particles).