

## **Solvent filled matrix polyelectrolyte capsules: preparation, structure and dynamics**

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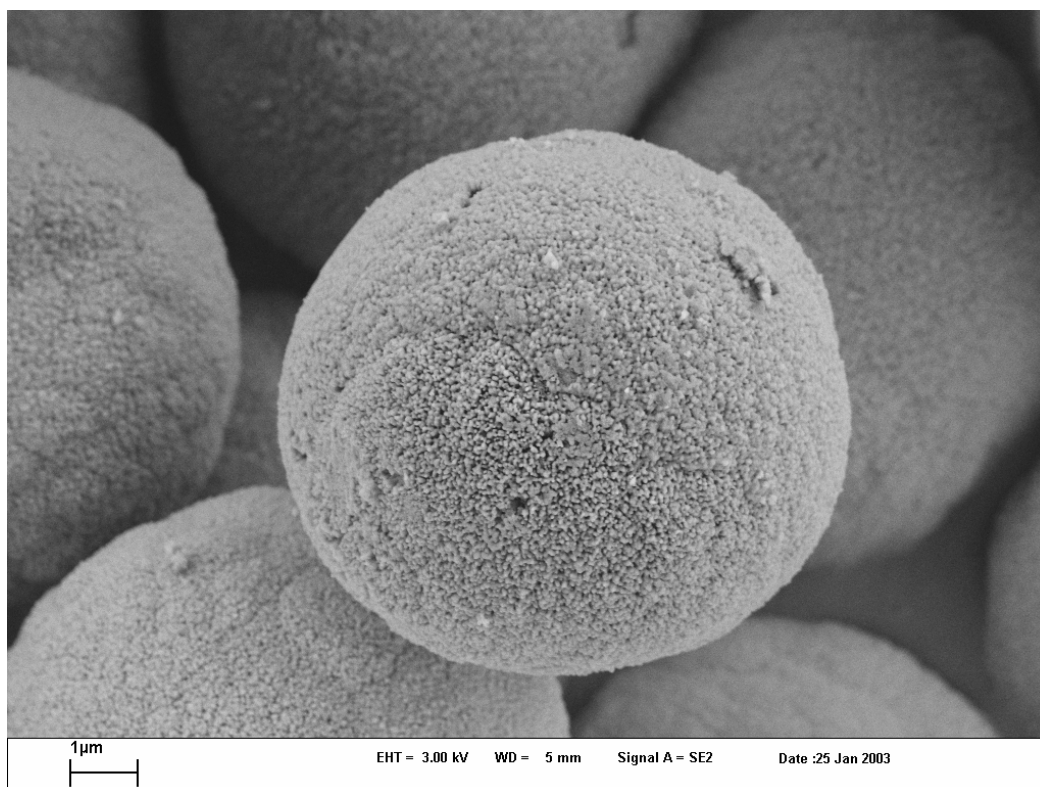
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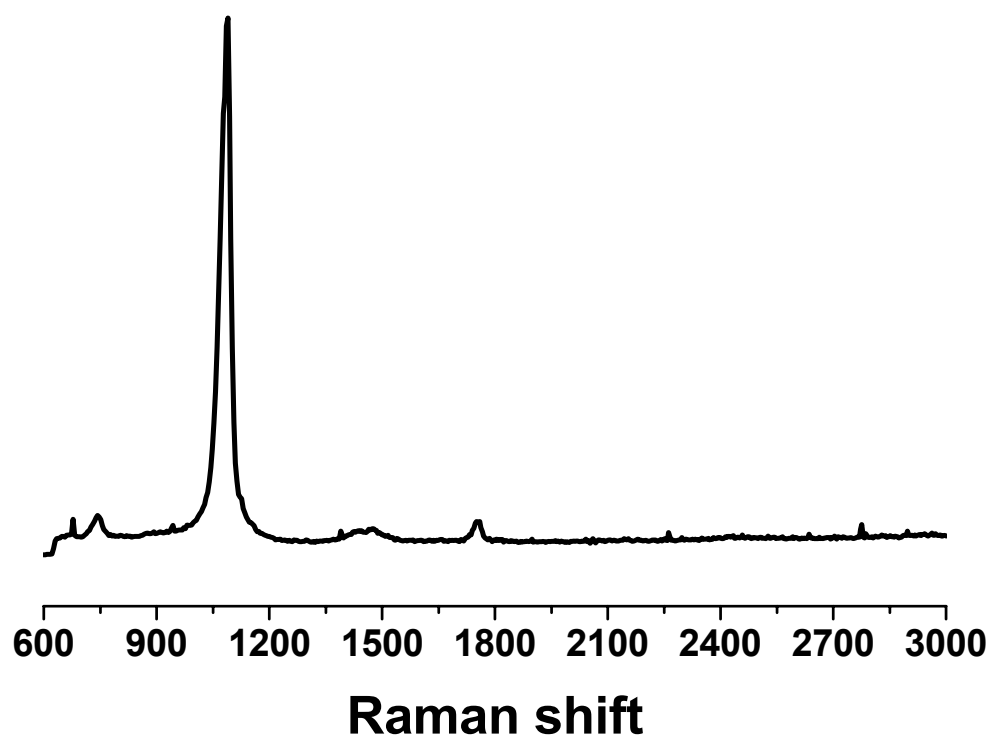
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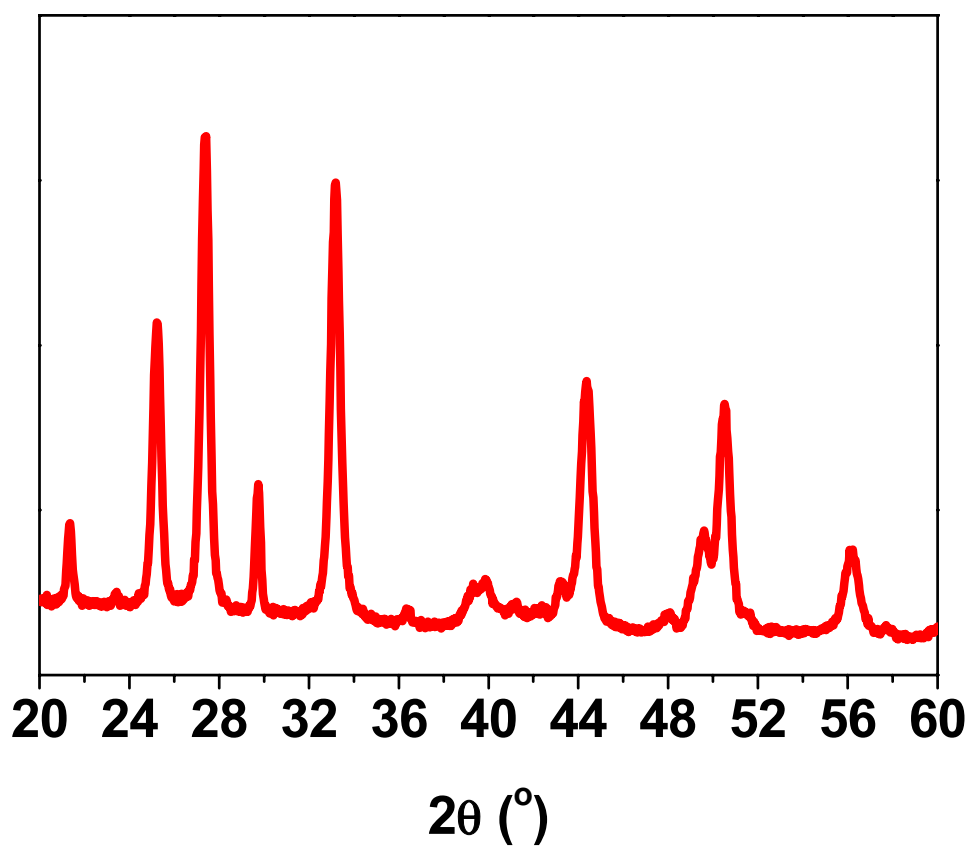
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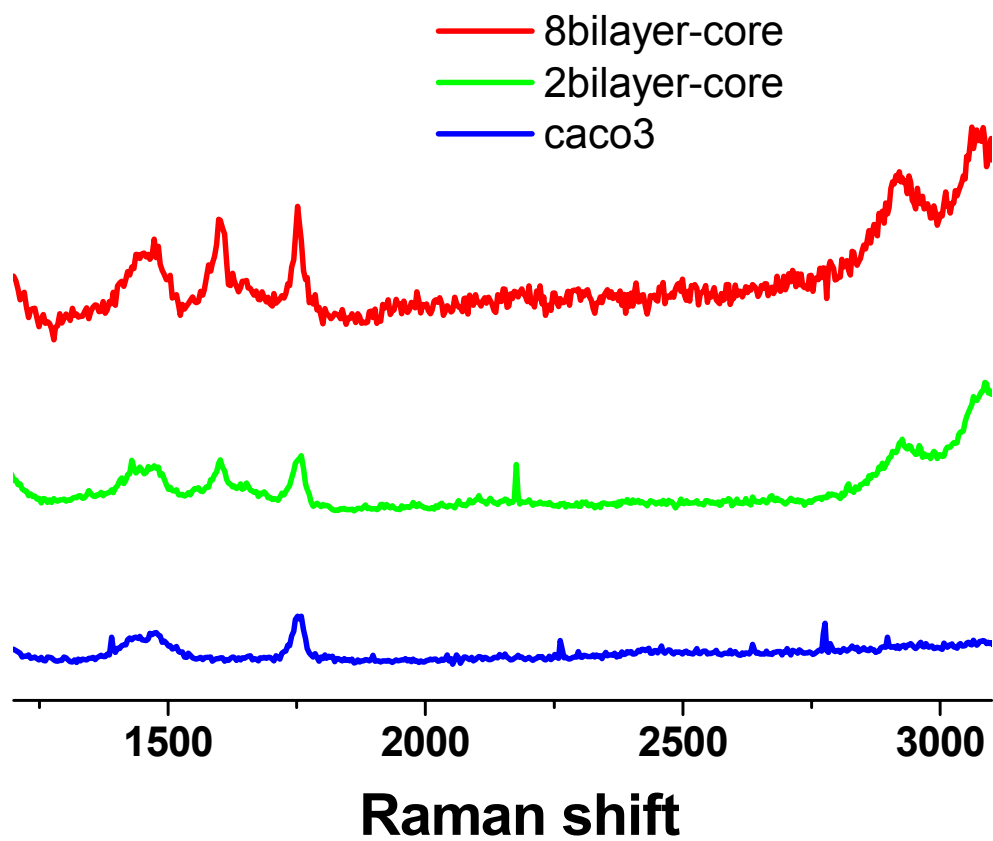
**Figure S1.** SEM images of CaCO<sub>3</sub> particles.



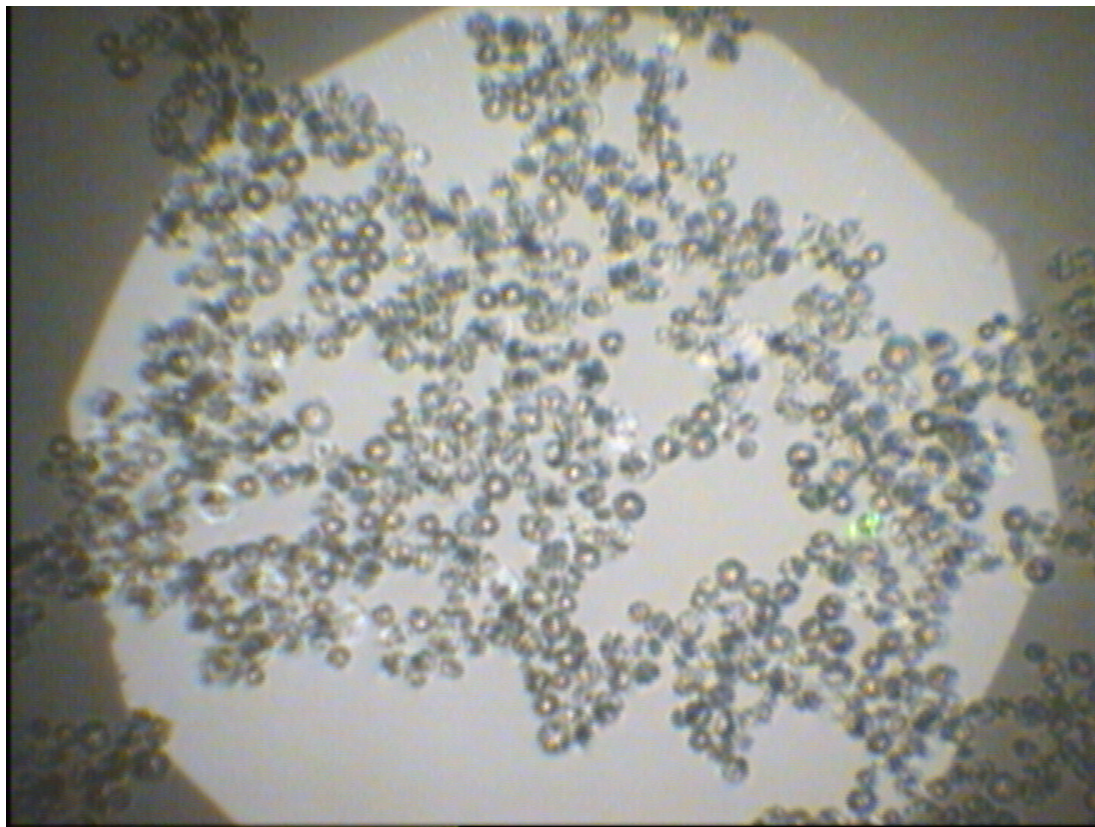
**Figure S2.** Raman spectrum of CaCO<sub>3</sub> particles.



**Figure S3.** XRD of CaCO<sub>3</sub> particles.



**Figure S4.** Raman spectrum of PEM of (PSS/PAH)<sub>n</sub> CaCO<sub>3</sub> particles (Red line, n=8; green line, n=2) and uncoated particles (blue line).



**Figure S5.** The optical image of solvent filled capsules (size of around  $5\mu\text{m}$ ) in water phase and tending to form the aggregation.