

Templating Synthesis of Polymeric Nanocages via Interfacial Polymerization of Monomer-Functionalized Surfactant Monolayer Absorbed on Crystallized Microemulsion Nanodroplets



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Well-defined polyelectrolyte nanocages have been obtained as one-to-one precise polymerized copies of the surfactant monolayers absorbed on crystallized nanodroplets. This method for the synthesis of nanocages via “crystal-forming” emulsions can lead to more accurate templating control than conventional emulsion-based approaches, without involving tedious procedure typically required in the approach of nanoparticle excavation. Having unique structures with monolayer-thick amphiphilic shell, these polyelectrolyte nanocages potentially may have broad applications in drug delivery, phase transfer catalysis, nanoreactor, and lay-by-layer preparation of complex nanomaterials.

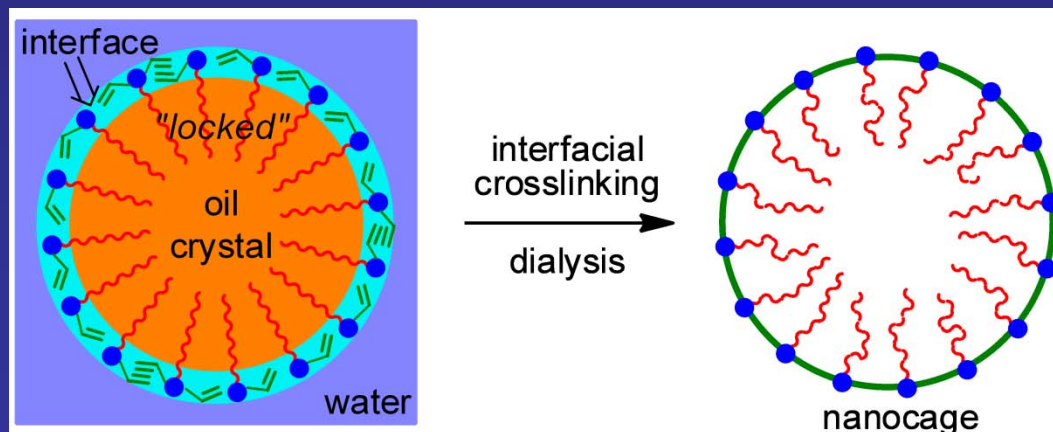


Figure 1. Schematic illustration for the synthesis of nanocages

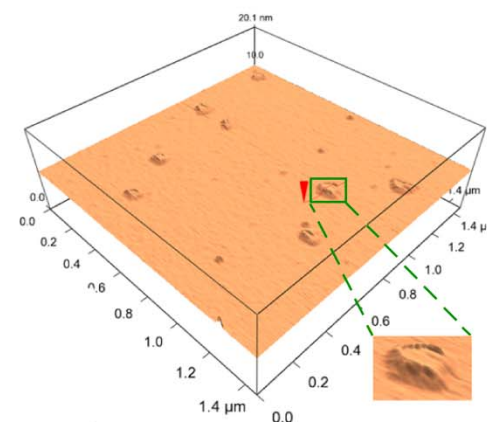


Figure 2. 3-D AFM image of nanocages