

Layer-by-Layer Assembly of Freestanding Thin Films with Homogeneously Distributed Upconversion Nanocrystals

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Supporting Information

A high-resolution TEM micrograph of citrate-coated UCNCs is shown below. The high degree of crystallinity of the particles is clearly demonstrated by the long-range order in the lattice fringing.

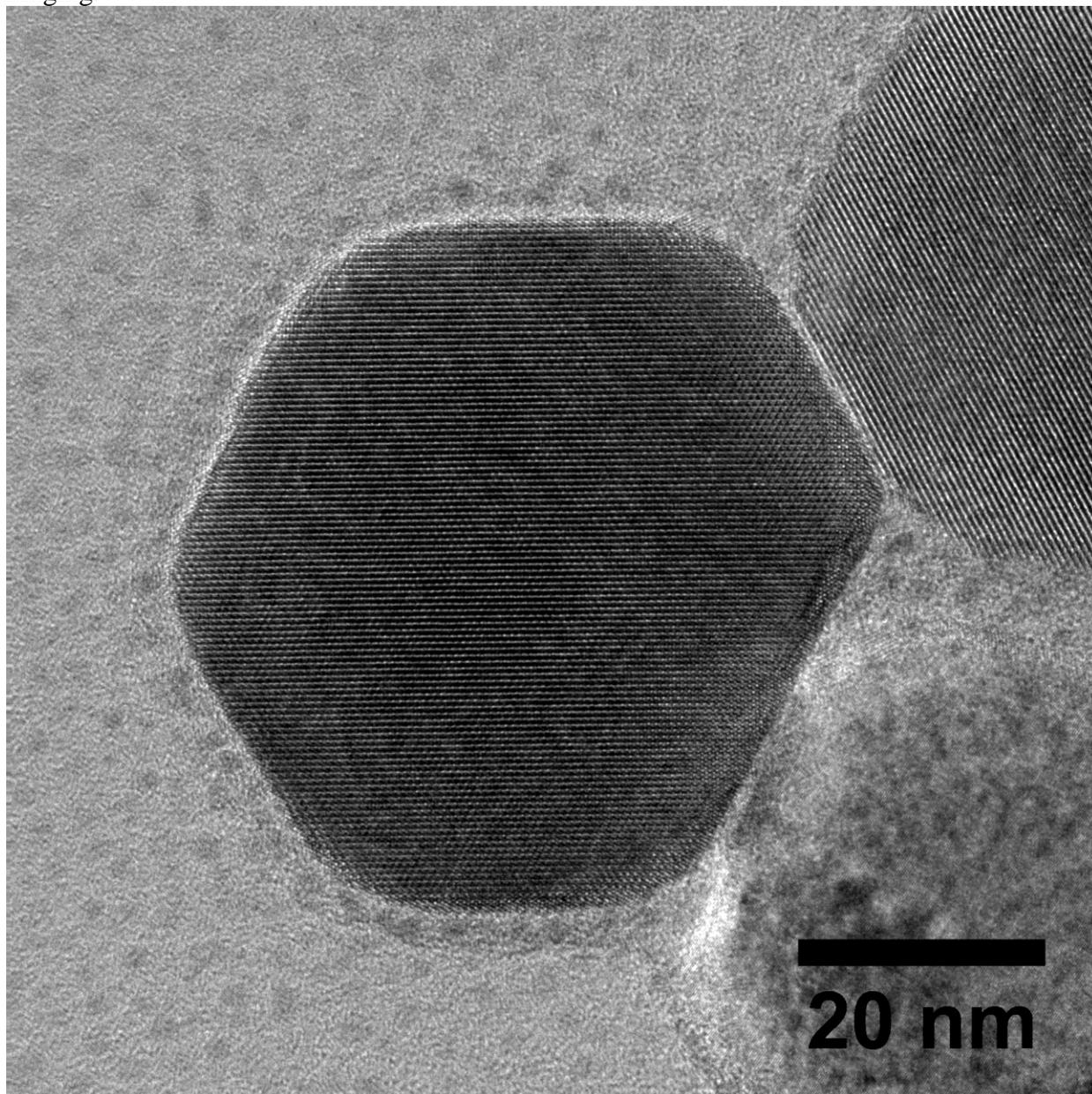


Figure S1: High-resolution TEM micrograph of citrate-coated UCNC.

TEM Images of Freestanding Thin Films containing UCNCs

TEM micrographs of freestanding thin films of 9Y9, containing a layer of UCNCs in the polyelectrolyte matrix, are shown in Fig. S2. TEM results confirm that UCNCs are sandwiched into the freestanding thin films (a total thickness below 100 nm). Moreover, TEM micrographs demonstrated that individual UCNCs were randomly distributed in the LbL thin films without obvious aggregations. The hexagonal shape of the UCNC in the TEM micrograph indicates the preservation of the crystallinity of UCNCs during the processes of surface modification and LbL assembly, and accounting for the observed upconversion properties of the freestanding nanocomposite LbL thin films containing UCNCs.

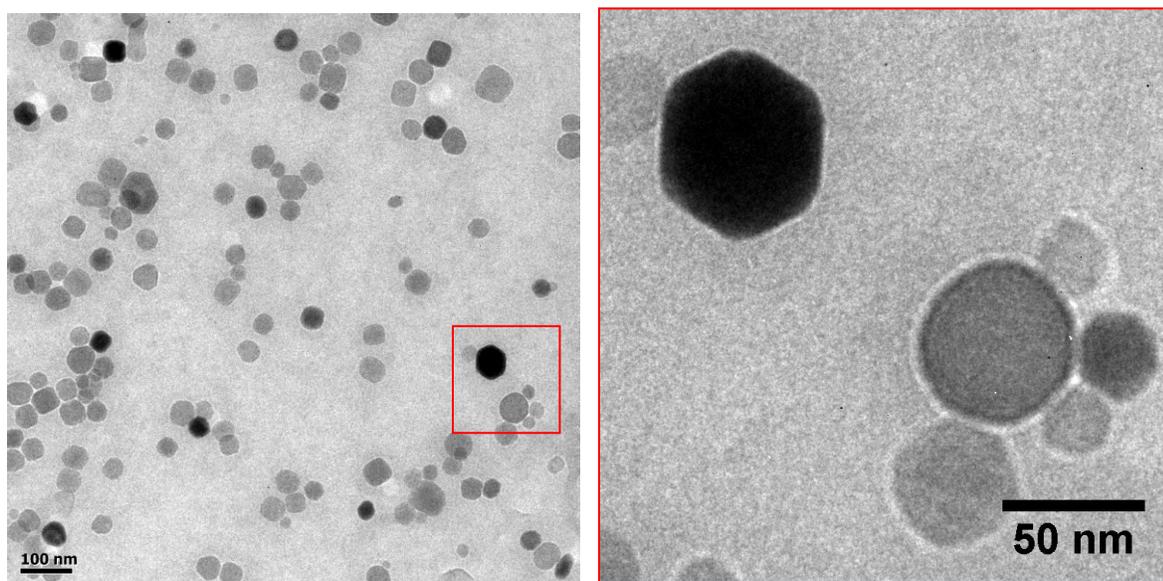


Figure S2: TEM micrographs of freestanding 9Y9 nanomembranes.