SUPPORTING INFORMATION

Sonochemical Preparation of Hollow Nanospheres and Hollow Nanocrystals

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Supporting Information Figure 1. Larger presentations of the TEM micrographs of Figure 3. Upper: sonochemically prepared hollow MoO_3 nanospheres from HF etching of $\text{MoO}_3/\text{SiO}_2$ before thermal annealing; Lower: after thermal annealing at 350°C ; insets are at higher magnification, scale bars as shown.

Supporting Information Figure 2. TEM micrographs of conventionally prepared silica-templated MoO_3 . Excessive deposition of MoO_3 prevents effective templating of isolatable nanospheres.

Supporting Information Figure 3. Optical absorption spectra of sonochemical MoS₂ (a) nanostructured MoS₂ (b) 50 nm sized hollow MoS₂ (c) 150 nm sized hollow MoS₂. The observed blue shifts of hollow and sonochemical MoS₂ are attributable to the quantum size effect, rather than strain, and increase as particle size or domain decreases. The interplay of strain, quantum confinement, and number of interacting layers is complex, however, and not easily separated.¹

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