

Highly dispersed Buckybowls as model carbocatalysts for C-H bond activation

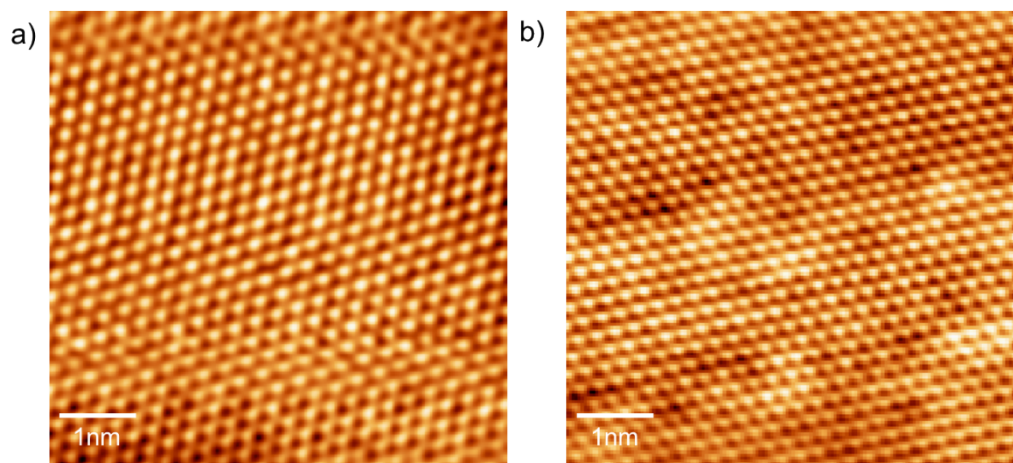
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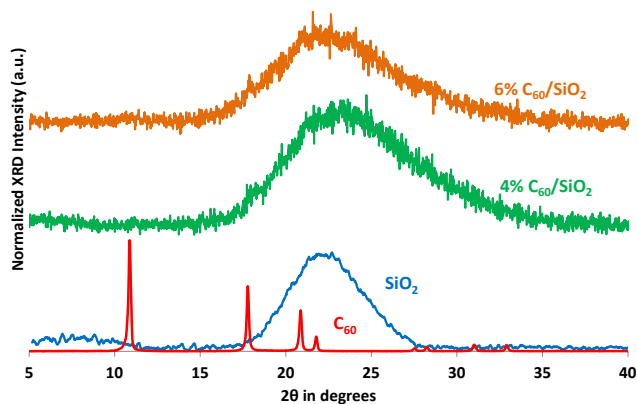
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Supplementary Information



Supplementary Figure S1. STM imaging of the pure HOPG surface before a) and after b) oxidation treatment.

To verify cleanliness of the *ex situ* oxidation procedure, we carried out the same oxidation process to the bare HOPG substrate. Figure S1a and b ($6 \times 6 \text{ nm}^2$, $V_t = 0.6 \text{ V}$ (A) and 0.8 V (B), $I_t = 400 \text{ pA}$) show atomically resolved STM topography images of HOPG substrate both before and after oxidation process, respectively. Oxidation pretreatment had no effect on the HOPG substrate.



Supplementary Figure S2. X-ray diffraction patterns for pure C_{60} , SiO_2 , 4% $\text{C}_{60}/\text{SiO}_2$ and 6% $\text{C}_{60}/\text{SiO}_2$

Supplementary Figure S2. shows the XRD patterns for pure fullerene, silica, as well as the synthesized catalysts. Pure fullerene shows strong peaks at 10.9° , 17.8° , 20.9° and 21.8° which correspond to (111), (220), (311) and (222) planes, respectively according to the reference ICDD 04-007-2472. Mesoporous silica only shows the broad $15\text{--}30^\circ$ band typical for amorphous SiO_2 .