## SUPPORTING INFORMATION AVAILABLE



**Figure S1.** Scanning electron micrographs of  $VO_2$  nanostars prepared by hydrothermal treatment of bulk  $VO_2$  and VO using methanol as a structure-directing agent at different reaction times. A distinct alteration of the morphology is observed with increasing reaction time with degradation of the intricate six-fold symmetry of the nanostructures; remnant "arms" of the nanostars are detected within a matrix of poorly defined  $VO_x$  nanostructures.



Figure S2. Raman spectra of the vapor-transported  $V_2O_5$  thin films and nanostars obtained by subsequent hydrothermal treatment of the thin films. All major V-O-V and V=O vibrational modes are marked; the peaks not explicitly assigned correspond to Fe<sub>2</sub>O<sub>3</sub> and other iron oxide species, as also observed by X-ray diffraction.



Figure S3. Raman spectra of the as-prepared VO<sub>2</sub> nanostructures. All major vibrational peaks obtained here are matched with bulk VO<sub>2</sub> Raman modes.