

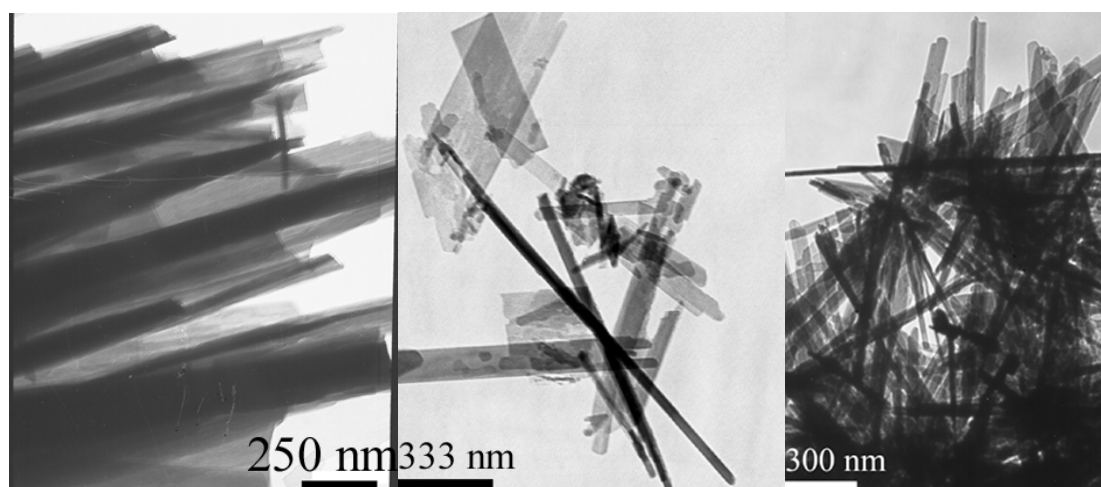
## Supporting Information Available

### Chromate Nanorods/nanobelts: General Synthesis, Characterization and Properties

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#### XRD patterns and TEM images of some other chromate nanorods/nanobelts:



**Figure 1.** Typical TEM micrographs of chromates of (a)  $\text{CaCrO}_4$  nanobelts, (b)  $\text{SrCrO}_4$  nanorods/nanobelts, and (c)  $4\text{ZnCrO}_4 \cdot \text{K}_2\text{O} \cdot 3\text{H}_2\text{O}$  nanorods. All the samples have been synthesized at  $140^\circ\text{C}$  and 20h in the presence of surfactant of PVP (1wt%) and the initial pH 7.

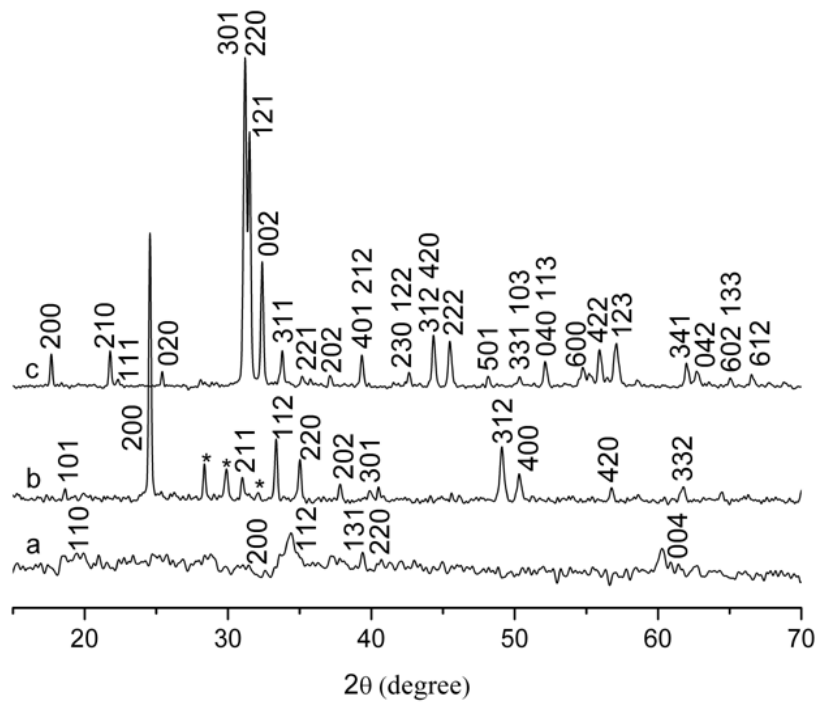
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**Figure 2.** XRD patterns of as-synthesized chromate nanostructures. (a) NiCrO<sub>4</sub>; (b) CaCrO<sub>4</sub>; (c) Ag<sub>2</sub>CrO<sub>4</sub>. It is shown that the crystallinity of NiCrO<sub>4</sub> is poor and also shown that some impurities are contained in CaCrO<sub>4</sub> phase, which is referred to by using asterisk\*. The reflections in Figure 2a is partly indexed to the orthorhombic phase (space group: Cmc<sub>2</sub>m (63)) of NiCrO<sub>4</sub> with lattice constants a = 5.482 Å, b = 8.237 Å, c = 6.147 Å and  $\alpha = \beta = \gamma = 90^\circ$  (JCPDS: 72-1605); the reflections in Figure 2b can be indexed to the body-centered tetragonal phase (space group: I4<sub>1</sub>/amd (141)) of CaCrO<sub>4</sub> with lattice constants a = 7.25 Å, b = 7.25 Å, c = 6.34 Å and  $\alpha = \beta = \gamma = 90^\circ$  (JCPDS: 75-0936); all the reflections in Figure 2c can be readily indexed to the pure orthorhombic type (space group: Pnma (62)) with lattice constants a = 10.063 Å, b = 7.029 Å, c = 5.54 Å and  $\alpha = \beta = \gamma = 90^\circ$  (JCPDS: 72-0858). All the samples have been synthesized at 140 °C and 20h in the presence of surfactant of PVP (1wt%) and the initial pH 7.