Supplementary Information

The phase of the nanowires obtained by dissolving AAO templates and Al substrates was characterized by X-ray (CuKα) powder diffraction (XRD). As shown in Figure 1, all the peaks can be indexed to a face-centered cubic Fe (JCPDS card No. 89-4184 space group Im3m).

![XRD pattern of Fe nanowires collected after dissolving AAO templates](image)

Fig.1 XRD pattern of Fe nanowires collected after dissolving AAO templates

The phase of the nanowires obtained by dissolving AAO templates and Al substrates was characterized by X-ray (CuKα) powder diffraction (XRD). As shown in Figure 2, all the peaks can be indexed to a face-centered cubic Fe (JCPDS card No. 89-4308 space group P63/mmc).

![XRD pattern of Fe nanowires collected after dissolving AAO templates](image)
**Fig. 2** XRD pattern of Co nanowires collected after dissolving AAO templates

**Fig. 3** The FESEM image of the Ni nanoarrays without any disposal

**Fig. 4** The FESEM image of the Ni nanoarrays with chromic acid disposal