Electronic Supplementary Material (ESI) for RSC Advances

Cathodic ALD V_2O_5 Thin Films for High-Rate Electrochemical Energy Storage

Xinyi Chen,[1,2] Ekaterina Pomerantseva,[2,3] Keith Gregorczyk,[1,2] Reza Ghodssi,[2,3] and Gary Rubloff[1,2]*

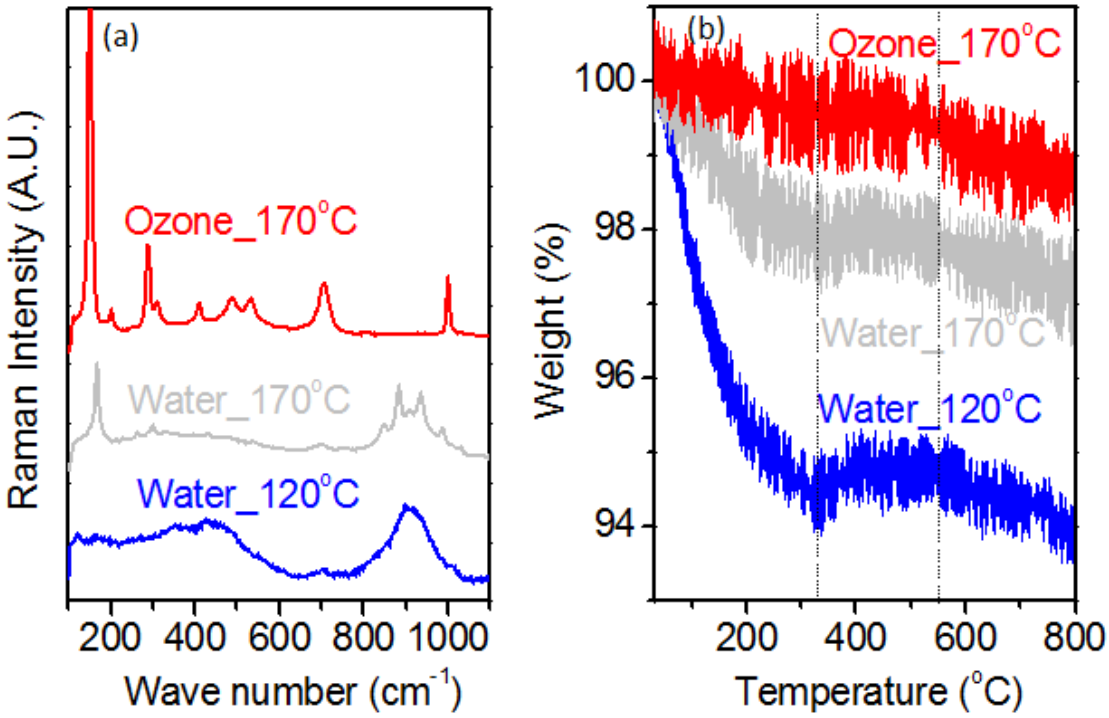

Figure 1s: (a) Raman scattering spectrum of ALD V_2O_5 films on stainless steel disk. Only the film deposited at 170 °C with O_3 as oxidant presents characteristic peaks of crystalline V_2O_5, marked in the Figure. Raman spectroscopy was performed with a Horiba Jobin-Yvon LabRAM HR-VIS MicroRaman system using a 632.8nm laser source. (b) TGA curves of V_2O_5 films. The O_3-based films deposited at 170 °C showed lowest mass loss, due to least residual water in the film. TGA was carried out in a TA instruments TGA Q500. The samples for TGA were deposited in Whatman Anodic alumina template (AAO) template to increase V_2O_5/substrate mass ratio. The baseline curve from AAO was subtracted to present that of V_2O_5 only, shown in (b).

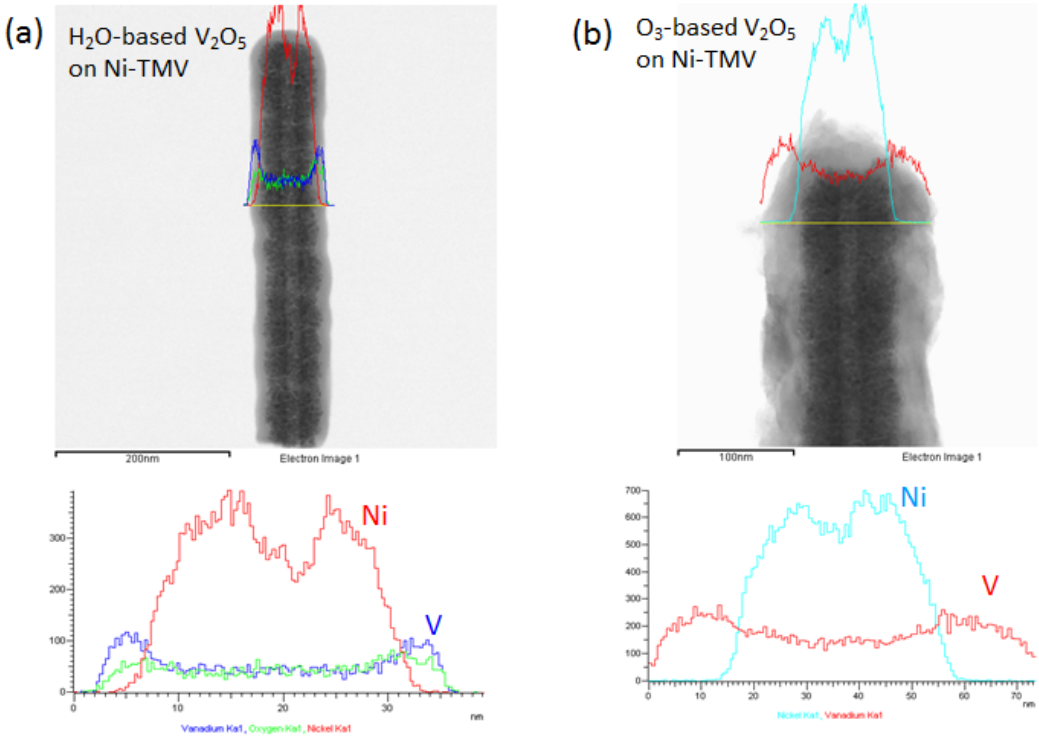

Figure 2s: EDS analysis of V_2O_5 coated Ni-TMV nanowires for determining V_2O_5 layer marked in Figure 3a and b.