

## **Figures for Electronic Supplementary Information**

**Figure 1S**. XRD pattern of an oriented film of the ultra-fine-fraction of SWy-2 used as starting clay material.



**Figure 2S**. Nyquist diagrams of a sample of PEDOT-montmorillonite nanocomposite containing around 100 mmol of PEDOT per 100g of clay. Measurements were carried out under  $N_2$  flux at different temperatures (26, 66 and 90 °C).