

# Surface modification of $\text{Li}_3\text{VO}_4$ with PEDOT:PSS conductive polymer as an anode material for Li-ion capacitors

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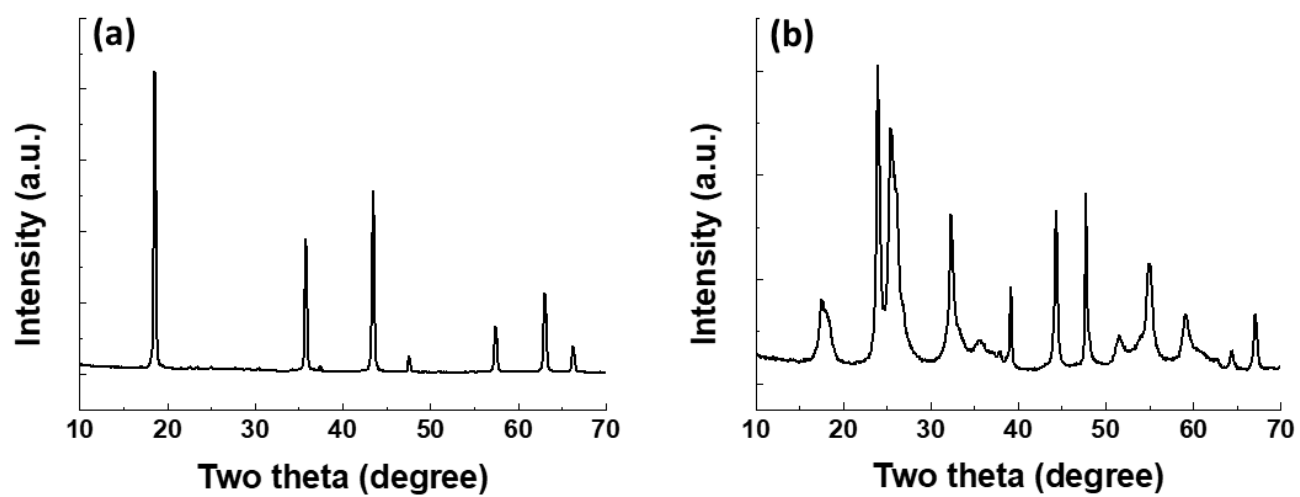
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## 1. Electrochemical Characterizations

First, LVO powders, conductive carbon and polyvinylidene fluoride (PVDF) binder were homogeneously mixed in N-methyl pyrrolidinone (NMP) in a weight ratio of 80:15:5 by a 3D mixer (BiO-COMPONENTS™ Inversina 2L) for 4h. Then, the slurry was coated on Al foil and dried at 80°C for 2 h. The electrodes were punched in the form of 14 mm diameter disks. Before the fabrication of coin cell, the punched disks were stored in vacuum and heated at 80°C for 24 h. The coin cells were fabricated by using LVO electrode metallic lithium and polypropylene membrane as working, counter electrodes and separator, respectively. All the assembled process was performed in an argon-filled glove box. The electrolyte comprises 1.0 M LiPF<sub>6</sub> dissolved in a mixture of ethylene carbonate and dimethyl carbonate at a volumetric ratio of 1:1. Cyclic voltammogram (CV) was measured with an electrochemical workstation (PAR, PARSTAT 4000A). Electrochemical impedance spectrum (EIS) was carried out at frequencies between 10<sup>5</sup> Hz and 10<sup>-2</sup> Hz on an Autolab electrochemical workstation.



**Figure S1.** The XRD patterns of (a) LTO and (b) TNO anode materials.