

Supercapacitor behaviour of nanosized α -LiFeO₂ in neutral sulphate electrolytes

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Nanometric size seems to be a key parameter for fast rate lithium ion and electrochemical capacitors. In a earlier work¹, we reported the electrochemical properties of a nanosized form of lithium ferrite, prepared by a simple and cost-saving method. Nanosized α -LiFeO₂ provided an interesting capacity of 160 mAh·g⁻¹ under C/4. In the present communication, we have extended its use to electrochemical supercapacitors using neutral sulphate electrolytes in order to build environmentally friendly devices². The results obtained indicate that the nanomaterial performs quite well as an capacitor electrode when a 0.5M Li₂SO₄ aqueous solution is used as electrolyte.

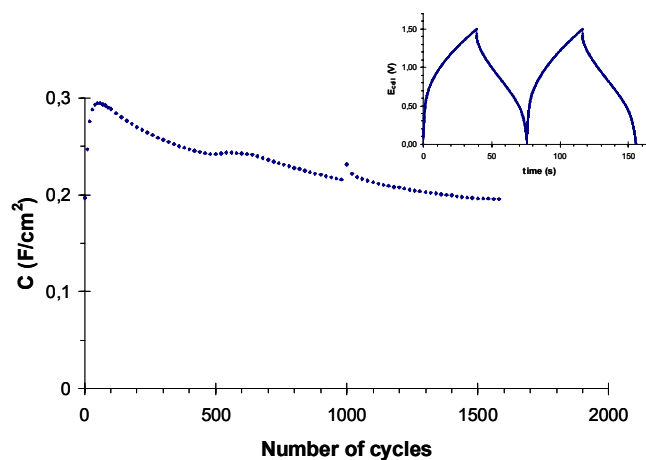
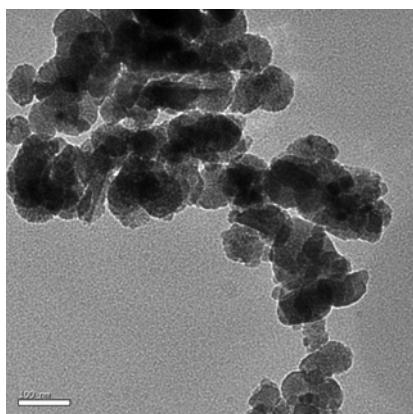


Figure 1. HRTEM image of nanosized α -LiFeO₂. **Figure 2.** Capacitance of the cell α -LiFeO₂/0.5M Li₂SO₄/MnO₂ as a function

of cycle number. Voltage range: 0-1.5V, $j = 5$ mA·cm⁻². Inset corresponds to the first two voltage/time profiles.

¹ Morales, J.; Santos-Peña, J. *Electrochem. Comm.*, **2007**, *9*, 2116.

² Cottineau, T.; Toupin, M.; Delahaye, T.; Brousse, T.; Bélanger, D. *Appl. Phys. A*, **2006**, *82*, 599.