

## Supplementary information

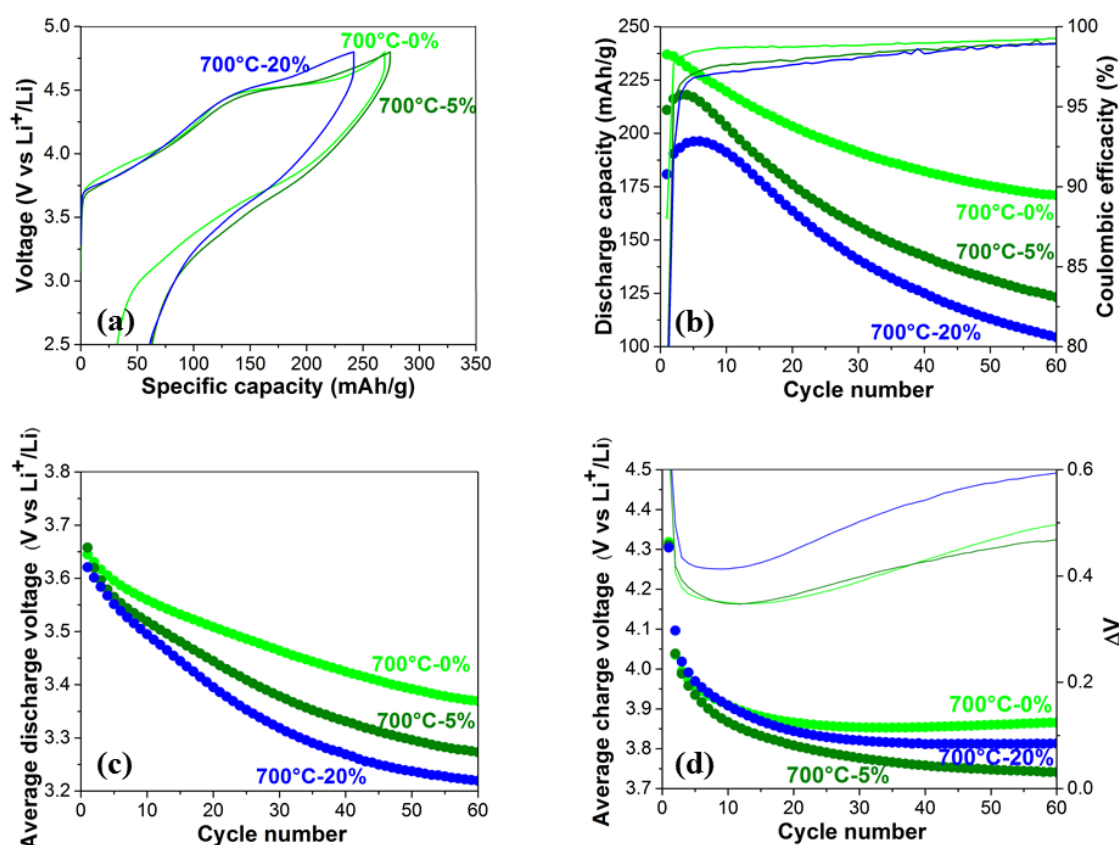
# Synthesis of Li and Mn-rich layered oxides as concentration gradients for Lithium-ion batteries

Ségolène Pajot<sup>a,b,c</sup>, Pierre Feydi<sup>b,c</sup>, François Weill<sup>a</sup>, Michel Ménétrier<sup>a</sup>,  
Gunay Yildirim<sup>b</sup>, Loïc Simonin<sup>c</sup> and Laurence Croguennec<sup>a</sup>

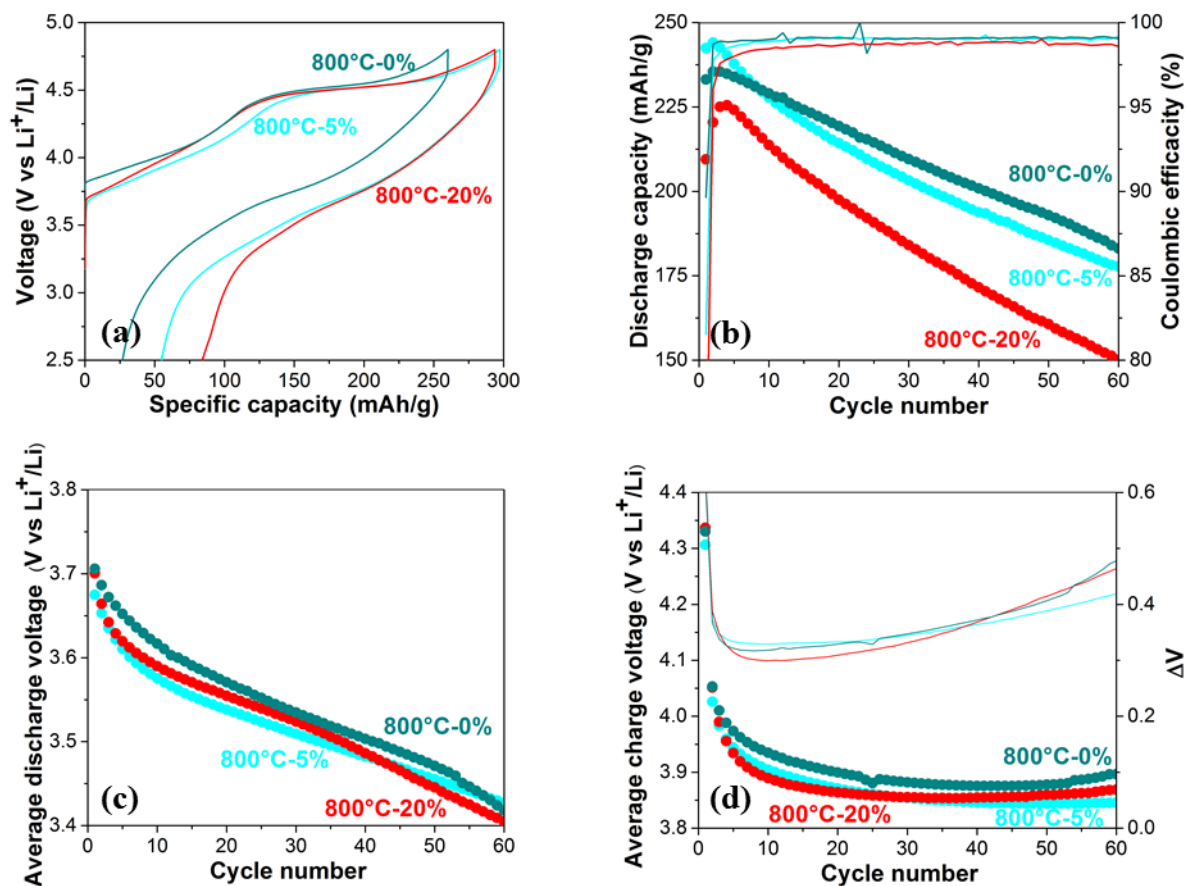
<sup>a</sup> ICMCB-CNRS, Univ. Bordeaux, Bordeaux INP, 87 avenue du Dr Schweitzer, ICMCB UPR 9048, F-33600 Pessac, France.

<sup>b</sup> Univ. Grenoble Alpes, F-38000 Grenoble, CEA, LITEN, 17 rue des Martyrs, F-38054 Grenoble cedex 9, France.

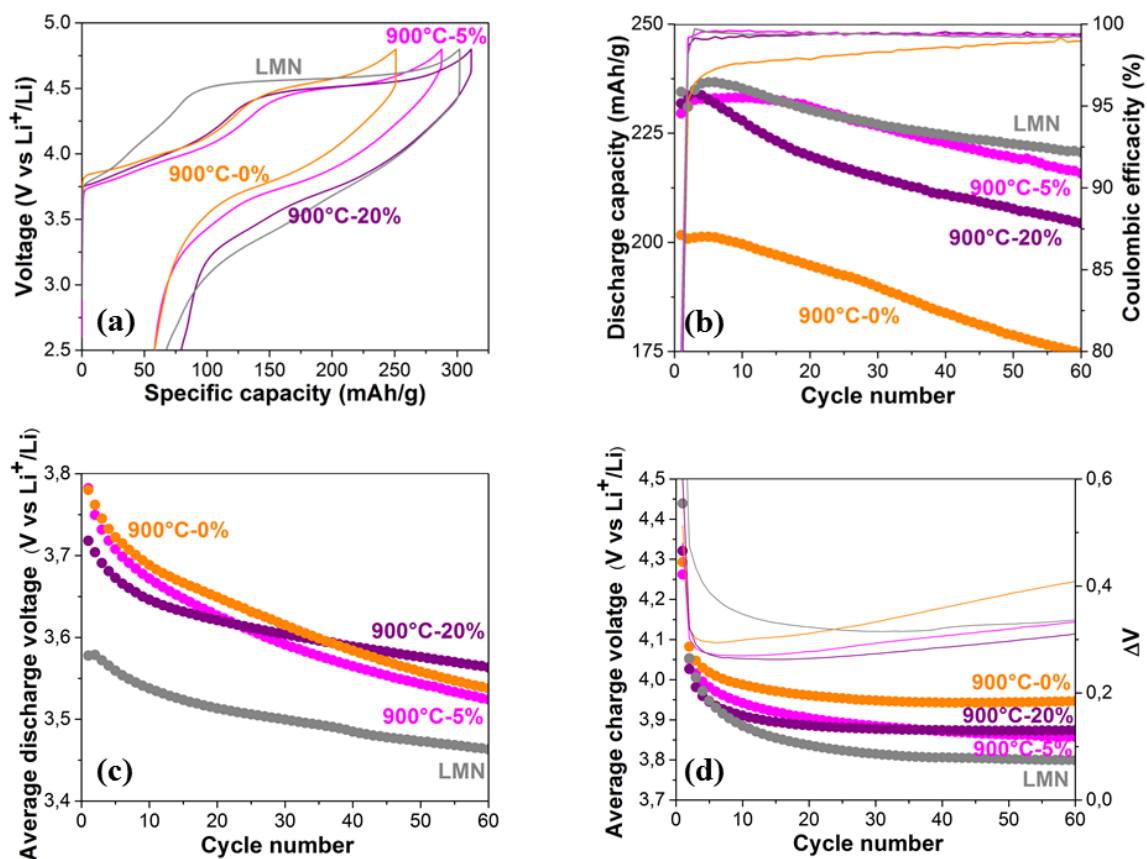
<sup>c</sup> CEA Tech Aquitaine. Bordeaux, 16 avenue Pey Berland – F-33607 Pessac, France



**Figure S1:** Comparison of the electrochemical performance obtained for the full concentration-gradient oxides calcined at 700°C (with 0%, 5% and 20% excesses of lithium): (a) initial charge-discharge cycles, (b) discharge capacity as function of the cycle number, (c-d) changes in the average discharge and charge potentials in the voltage range 2.5-4.8 V at the rate of C/10.



**Figure S2:** Comparison of the electrochemical performance obtained for the full concentration-gradient oxides calcined at 800°C (with 0%, 5% and 20% excesses of lithium): (a) initial charge-discharge cycles, (b) discharge capacity as function of the cycle number, (c-d) changes in the average discharge and charge potentials in the voltage range 2.5-4.8 V at the rate of C/10.



**Figure S3:** Comparison of the electrochemical performance obtained for the full concentration-gradient oxides calcined at 900°C (with 0%, 5% and 20% excesses of lithium) and for the homogeneous layered oxide  $\text{Li}_{1.2}\text{Mn}_{0.6}\text{Ni}_{0.2}\text{O}_2$  (LMN): (a) initial charge-discharge cycles, (b) discharge capacity as function of the cycle number, (c-d) changes in the average discharge and charge potentials in the voltage range 2.5-4.8 V at the rate of C/10.