

## **Synthesis and electrochemical characterizations of Li doped Mn and Ni based layered oxides as stable cathode materials for Na-ion batteries**

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Layered transition-metal oxides have attracted increasing interest as cathode materials for sodium-ion batteries for their large specific capacity and high operating potential. However, they suffer of irreversible phase transitions that may lead to a poor cyclic stability. Here we report the synthesis and the electrochemical characterization of P2 type, Li doped, manganese and nickel based layered oxides. The materials have been synthesized through a solid-state route and calcined at 900°C. Galvanostatic cycling performed in the 1.5-4.5V voltage range reveals an extraordinary cycling stability for material with composition  $\text{Na}_{0.90}\text{Li}_{0.1}\text{Ni}_{0.27}\text{Mn}_{0.63}\text{O}_2$ . The oxygen redox activity in the high potential range has been monitored through XPS analysis and cyclic voltammetry.

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