



# Lithium n-Doped Polyaniline as a High-Performance Electroactive Material for Rechargeable Batteries

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**Résumé en anglais** The discovery of conducting lithium-doped polyaniline with reversible redox chemistry allows simultaneous unprecedented capacity and stability in a non-aqueous Li battery. This compound (lithium emeraldinate) was synthesized by lithium-proton exchange on the emeraldine base in an anhydrous lithium-based electrolyte. A combination of UV/Vis-NIR spectroelectrochemistry, XPS, FTIR, and EQCM characterization allowed a unified description of the chemical and electrochemical behavior, showing facile charge delocalization of the doped states and the reversibility of the redox processes in this form of polyaniline. From a practical point of view, lithium emeraldinate behaves as a high-capacity organic active material (230 mAh g<sup>-1</sup>) that enables preparation of relatively thick composite electrodes with a low amount of carbon additives and high energy density (460 Wh kg<sup>-1</sup>). Concomitantly, at 1C rate, 400 cycles were achieved without significant capacity loss, while the coulombic efficiency is greater than 99 %.

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## Liens

[1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=18784>

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