



# Novel Cathodic Materials for Rechargeable Lithium Batteries

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A large number of research groups throughout the world, are struggling to improve performance of lithium ion batteries in terms of higher capacity, cyclability, safety, shelf life and green materials. The major drawbacks of rechargeable lithium batteries is their relatively low stability during prolonged cycling mainly due to surface reactions of the electrodes with components of the electrolyte solutions. There are also kinetic limitations of the lithium intercalation into cathodic and anodic compounds and hence limited capacity during fast charge-discharge cycling and also a limited stability at elevated temperature. There are also problems of safety and toxicity. The purpose of this work was a systematic study of new candidates of cathode materials for rechargeable Li batteries. Variety of the cathodic compounds, which may be promising in terms of high capacity tested by different techniques. New synthetic methods for novel cathodic materials investigated. Micronic and nanometric size cathodic materials compared. Also studied Carbon coated nanomaterials with core shell structure. The research included the use of a wide variety of electrochemical and analytical methods.

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