

Abstract Submitted  
for the NES15 Meeting of  
The American Physical Society

**Gd (III) doped LiMn<sub>2</sub>O<sub>4</sub> cathode material for lithium ion rechargeable batteries** RAHUL SINGHAL, Department of Physics and Engineering Physics, Central Connecticut State University, New Britain, CT 06050, PURA RAM, RAKESH KUMAR SHARMA, Indian Institute of Technology Jodhpur, Jodhpur-India — The spinel structured LiMn<sub>2-x</sub>Gd<sub>x</sub>O<sub>4</sub> (x=0.01-0.05) have been synthesized via sol gel method. The physical and electrochemical characterization were carried out using X-ray diffraction (XRD), scanning electron microscopy (SEM), Energy dispersive x-ray analysis (EDX), Fourier transform infrared spectroscopy (FTIR), UV-Vis spectroscopy, Raman spectroscopy, cyclic voltammetry and charge-discharge studies. The reversibility of synthesized cathode was supported through cyclic voltammetry in 3.0 - 4.5 voltage range. The initial charge discharge capacity of cathode materials was found in range 130-140 mAhg<sup>-1</sup>. The fabricated coin cell was tested up to 50 charge –discharge cycles with 0.5 C rate. The small amount of rare earth metal, Gd, doping showed improvement in capacity fading compared to LiMn<sub>2</sub>O<sub>4</sub> cathode, offer its applicability for Li-ion rechargeable battery.

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Date submitted: 12 Mar 2015

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