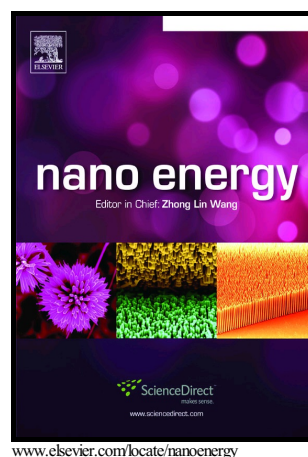


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ABSTRACT:

Cathode materials with low-cost, environment-friendly, high energy density are critical for lithium-ion batteries (LIBs). Here, the effects of Fe doping on the structure of LiMnPO_4 (LMP) are investigated by neutron powder diffraction (NPD). The prepared $\text{LiMn}_{0.6}\text{Fe}_{0.4}\text{PO}_4/\text{carbon}$ (LMFP/C) shows a higher specific capacity of 90 mAh g^{-1} at a current density of 1 C, which is about 5 times of that of LiMnPO_4/C . It also shows excellent cycling performance for 1000 cycles. The improved electrochemical performance is ascribed to the higher octahedral distortion of $(\text{Mn, Fe})\text{O}_6$ and an easiness for Li diffusion due to much less anisotropic ellipsoids for Li in

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