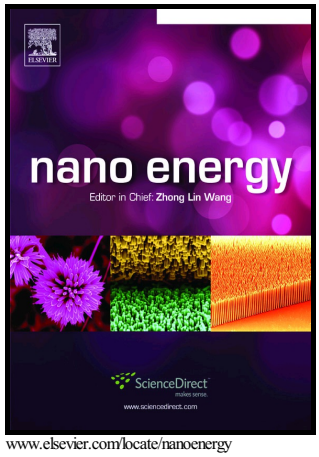

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ABSTRACT:

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 $LiMn_{0.6}Fe_{0.4}PO_4$/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 (Mn, Fe)O_6 and an easiness for Li diffusion due to much less anisotropic ellipsoids for Li in