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Supporting Information

Pre-swelled nanostructured electrode for lithium ion battery: TiO$_2$-pillared layered MnO$_2$

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S. Fig. 1  SEM images of (a) KM, (b) HM, (c) TBAM, and (d) TMN-rt.
S. Fig. 2 Charge-discharge curves (second cycle) of KM, TBAM, TMN-250, and TiO$_2$ nanoparticle as a cathode material by coupling with a lithium metal anode using 1 M LiPF$_6$ in a mixed electrolyte of ethylene carbonate and dimethyl carbonate (EC/DMC, 1:1 vol.%) at a constant current density of 20 mA g$^{-1}$ (electrode surface area is ~ 1 cm$^2$).
S. Fig. 3 Powder XRD patterns for KM. All the XRD peaks are indexed.
S. Fig. 4 Powder XRD patterns for (a) HM, (b) TMN-rt, (c) TMN-150, and (d) TMN-250. All the XRD peaks are indexed.