Spinel MgAl$_2$O$_4$ modification on LiCoO$_2$ cathode materials with the combined advantages of MgO and Al$_2$O$_3$ modifications for high-voltage lithium-ion batteries

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Fig. S1 XRD patterns of the pristine LiCoO$_2$ and 1%, 10% MgAl$_2$O$_4$-modified LiCoO$_2$ samples
Fig. S2 Initial Cyclic voltammograms (CVs) of the pristine LiCoO$_2$ and Al$_2$O$_3$, MgO, MgAl$_2$O$_4$-modified LiCoO$_2$ at 0.1 mV s$^{-1}$ scan rate. CV tests of Li||LiCoO$_2$ cells were performed over the potential range of 3.0–4.5 V at a scanning rate of 0.1 mV s$^{-1}$ on a CHI 604D electrochemical workstation (Chenhua Instruments Co. Ltd).

Fig. S3 Charge-discharge curves (a) and cycling performance (b) of the pristine LiCoO$_2$ and MgAl$_2$O$_4$-modified LiCoO$_2$ samples with various compositions.