Supporting Information

Heterostructure Fe₂O₃ nanorods@imine-based covalent organic framework for long-cycling and high-rate lithium storage

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**Fig. S1** XRD patterns of $\alpha$-Fe$_2$O$_3$ (a) and FO@LZU1$_{20\%}$, FO@LZU1$_{70\%}$ (b).

**Fig. S2** SEM images of FO@LZU1$_{20\%}$ (a) and FO@LZU1$_{70\%}$ (b).
Fig. S3 CV curves of α-Fe₂O₃.

Fig. S4 The discharge/charge profiles for the 1st, 2nd, 10th, 50th, 200th, 300th of FO@LZU₁20% (a) and FO@LZU₁70% (b).
Fig. S5 The cycling performance of FO@LZU1_{50\%} at 0.5 A g\textsuperscript{-1} after 250 cycles.

Fig. S6 The cycling performance of $\alpha$-Fe\textsubscript{2}O\textsubscript{3} at 1 A g\textsuperscript{-1} after 500 cycles.
Fig. S7 The cycling performance of COF-LZU1 at 1 A g\textsuperscript{-1} after 300 cycles.

Fig. S8 Rate performance of α-Fe\textsubscript{2}O\textsubscript{3}.

**Fig. S9** XRD patterns of FO@LZU1_{50\%} after 300 cycles.

**Fig. S10** SEM image (a) and TEM image (b) of FO@LZU1_{50\%} after 300 cycles.