Supplementary information

Suppression of lithium dendrite growth by introducing a low

reduction potential complex cation in electrolyte

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Fig.S1 The curves of current-time and voltage-time during the lithium deposition and stripping on Cu substrate.

Cycling performance of LiCoO2 composite using electrolyte with 20% content of the complex cation donor at a current rate of 0.2C and within the 2–4.2 V range, it delivers a reversible capacity of 134mAh/g after 50 cycles (See Figure S2), indicating that no evident influence occurs for the cathode cyclic performance when the LPRCC is introduced to electrolyte.



Fig.S2 Cycling performance of $LiCoO_2$ composite using electrolyte with 20% content of the complex cation donor at a current rate of 0.2C.