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Unlocking the potential of a multi-electron p-type polyheterocycle cathode: when it meets a small-size and high-charge anion

We design a multi-two-electron p-type polyheterocycle cathode compatible with small-size and high-charge  $SO_4^{2-}$  anion. The desirable combination of the two unlocks ultrahigh redox utilization (99.5%) of phenothiazine/piperazine units at ultralow activation energy (0.2 eV), propelling better zinc-organic batteries.

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