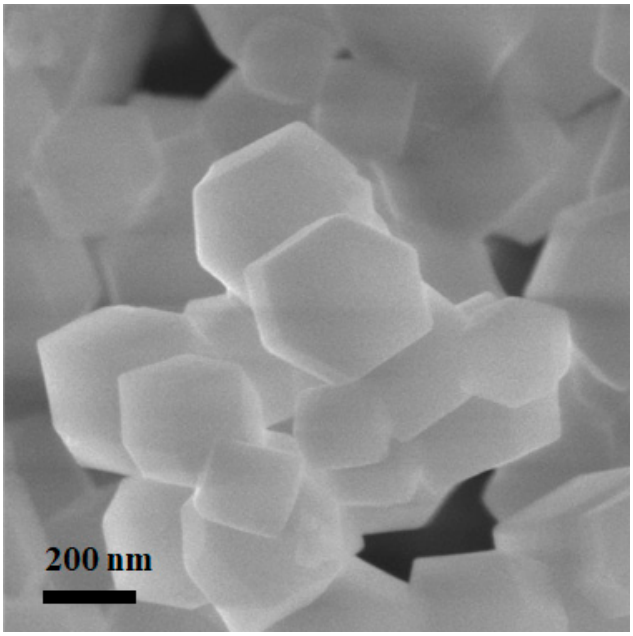

Figure S1. (A, B) SEM images of ZIF-67.

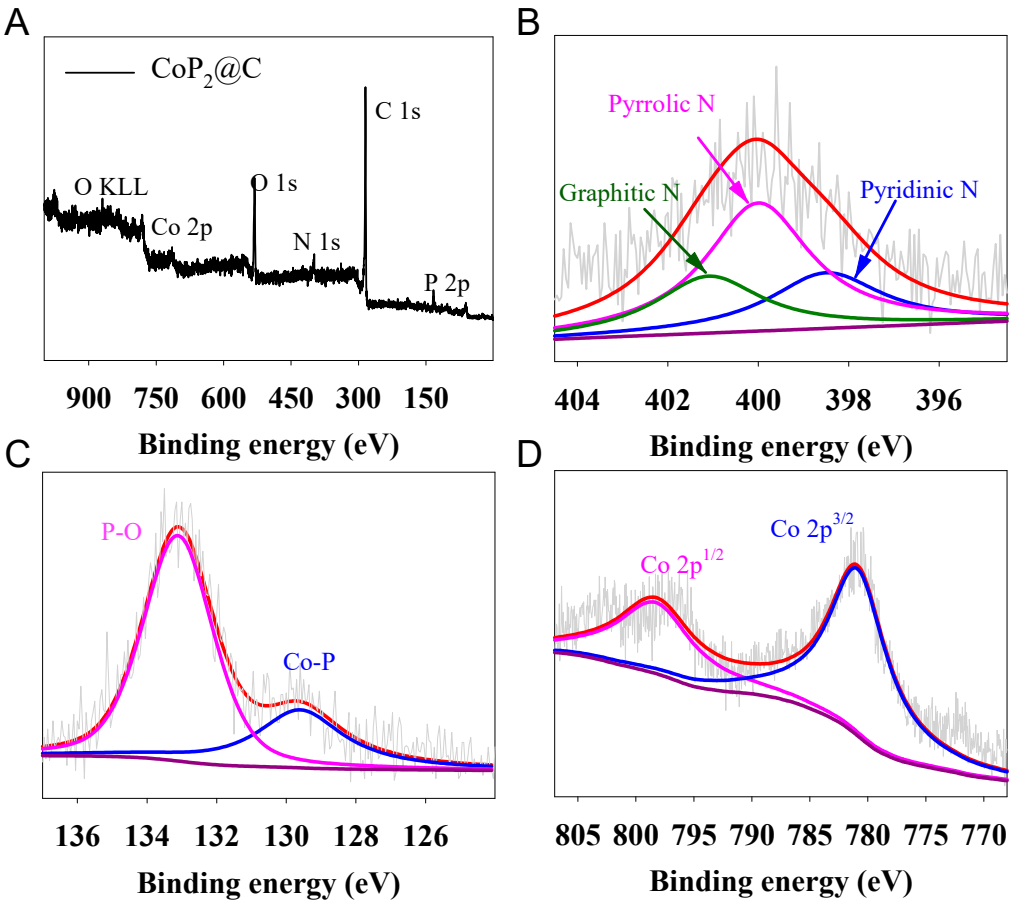

Figure S2. (A) Full XPS of CoP_2@C, high-resolution XPS of (B) N 1s, (C) P 2p, (D) Co of CoP_2@C.

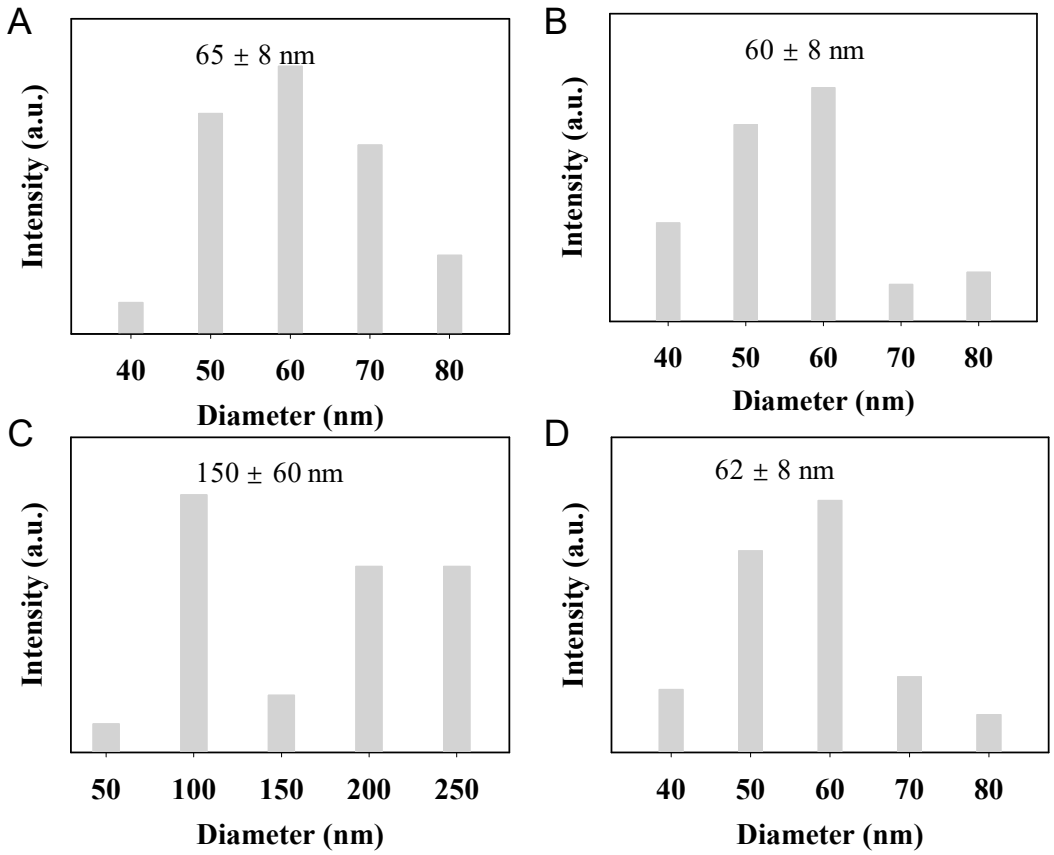

Figure S3. Size distribution histograms of A) CoP_2@C, B) CoP_2@C@CO with fresh material; C) CoP_2@C and D) CoP_2@C@GO after 200 cycles at 1 A g^{-1}, respectively.

Table. S1 Electrochemistry performance of different anode materials for LIBs.

Materials	electrode	Initial capacity (mA h g^{-1})	capacity(mA h g^{-1})/ cycle number	Ref.
CoP_2@C@GO	Anode	1450.0	452/ 200	This work
Turbostratic carbon-coated Graphite	Anode	340.0	295/300	[1]
NOPCT@ Graphite	Anode	350.0	400/450	[2]
TiO_{2-x}-decorated graphite	Anode	320.0	240/100	[3]
LTO-SPS	Anode	169.2	118/100	[4]
LTO-0.3Br-N-90	Anode	175.0	105/100	[5]
FePNC	Anode	506.0	274/200	[6]
C-FeP	Anode	551.3	183.9/200	[7]
rGO@CoP@CeFeP	Anode	367.6	285/200	[7]
CoP@C-rGO-NF	Anode	1163.5	473.1/100	[8]

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