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Electronic Supplementary Information

Silicon monophosphide as possible lithium battery anode material

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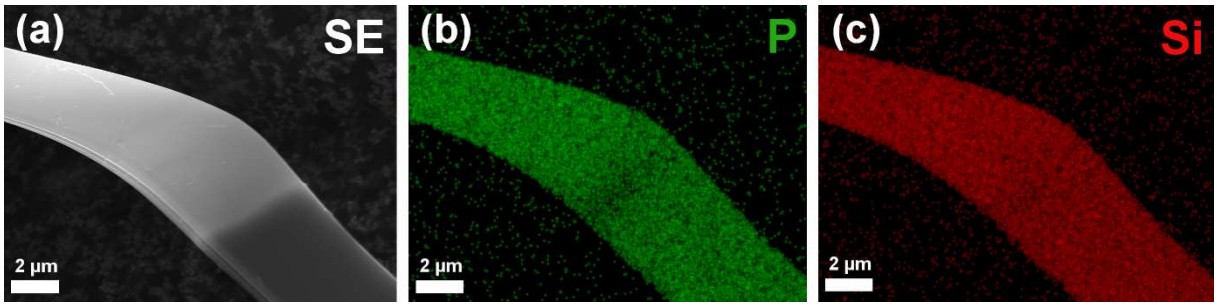

Fig. S-1 EDXS of as-prepared SiP. SE image (a) and corresponding phosphorus P-K (b) and silicon Si-K (c) images are given.

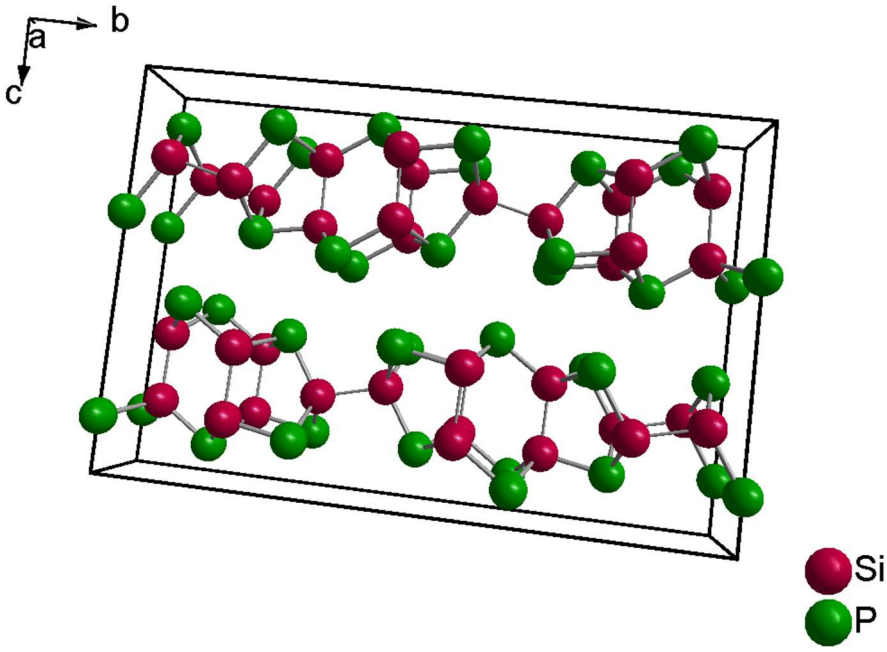

Fig. S-2 Crystal structure of orthorhombic SiP ($Cmc2_1$) according to Wadsten.[1]

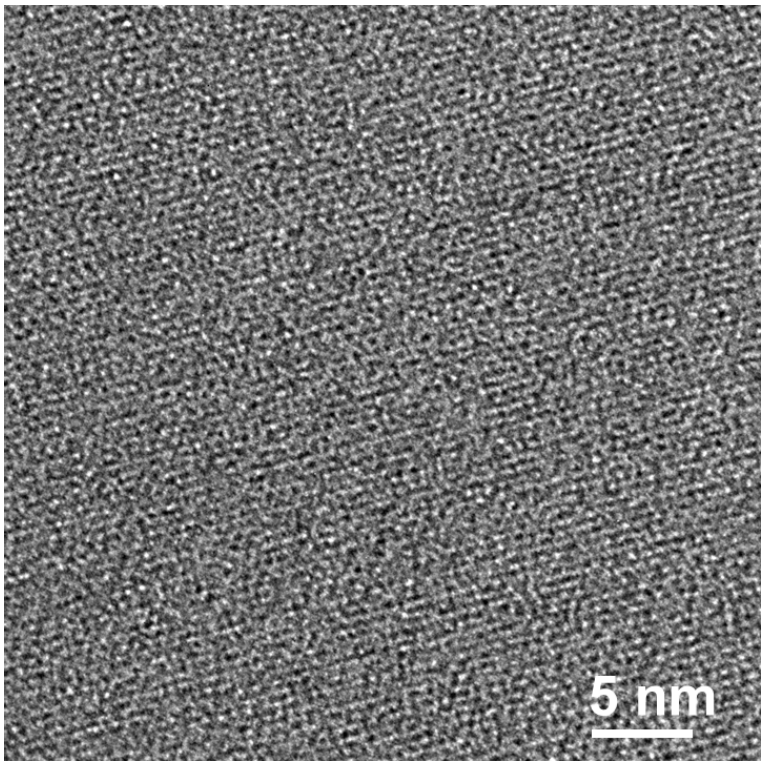

Fig. S-3 HRTEM image of as-prepared SiP. Viewing direction is along [001] axis.

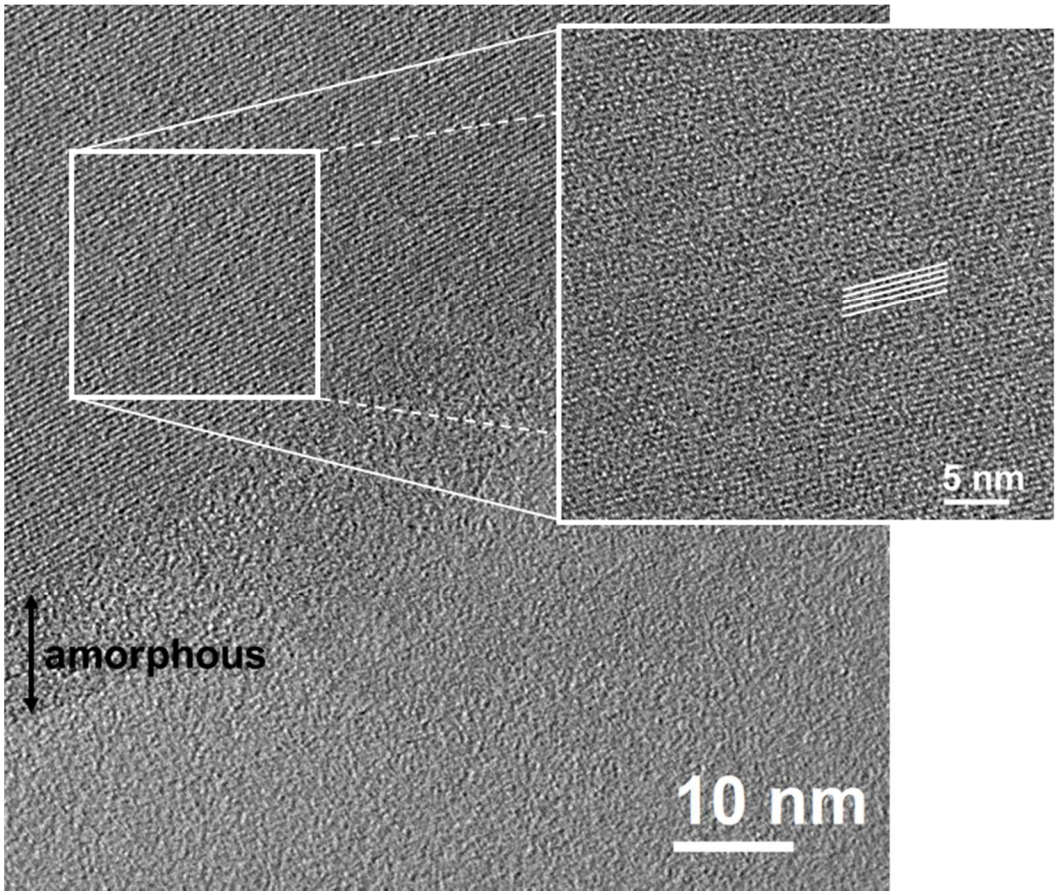

Fig. S-4 HRTEM image of as-prepared SiP.

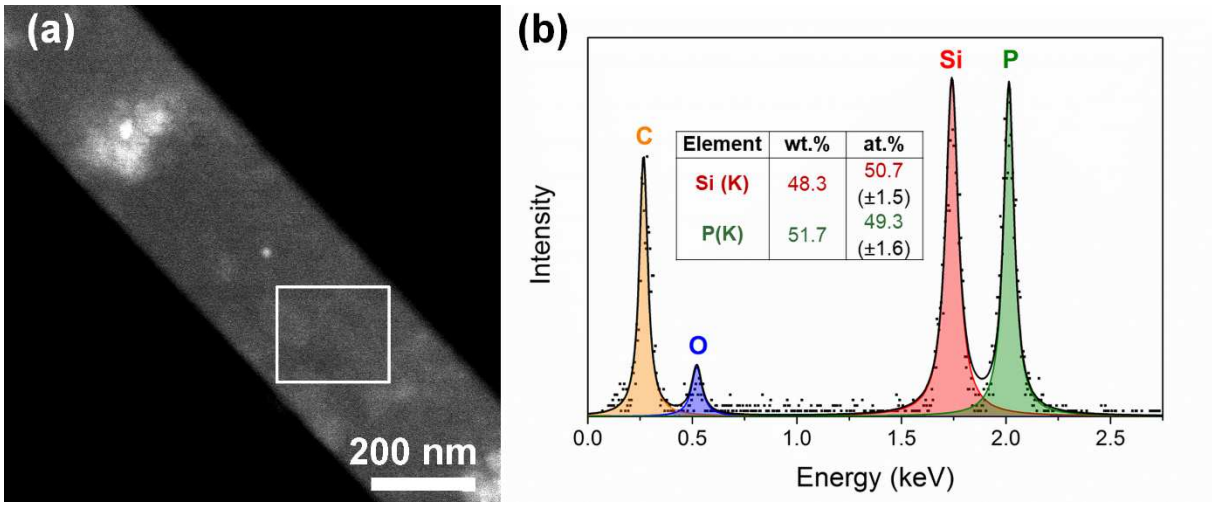

Fig. S-5 STEM image (a) and corresponding (rectangle) EDX spectra (b) of as-prepared SiP. Inset table in (b) represents calculated composition (not considering carbon and oxygen).

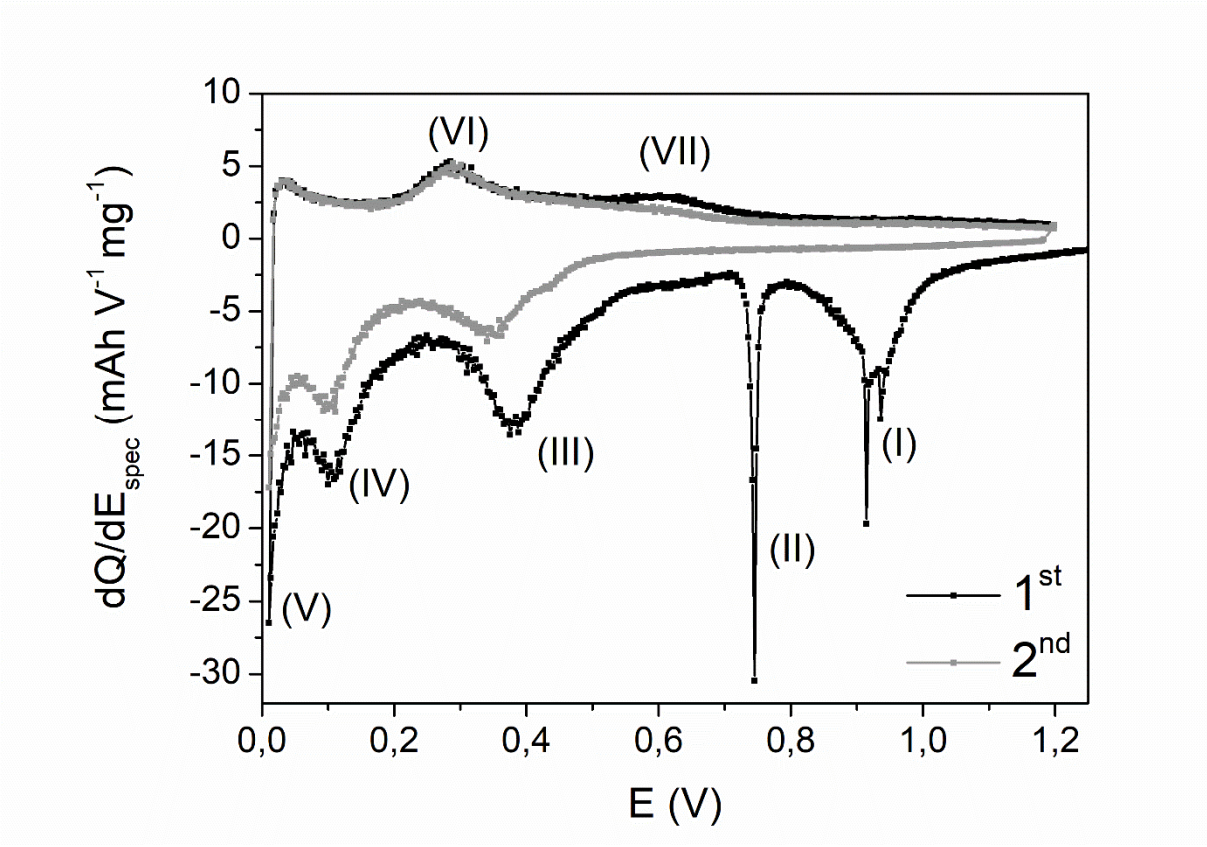

Fig. S-6 Differential capacity plot of SiP for the first and second cycle.

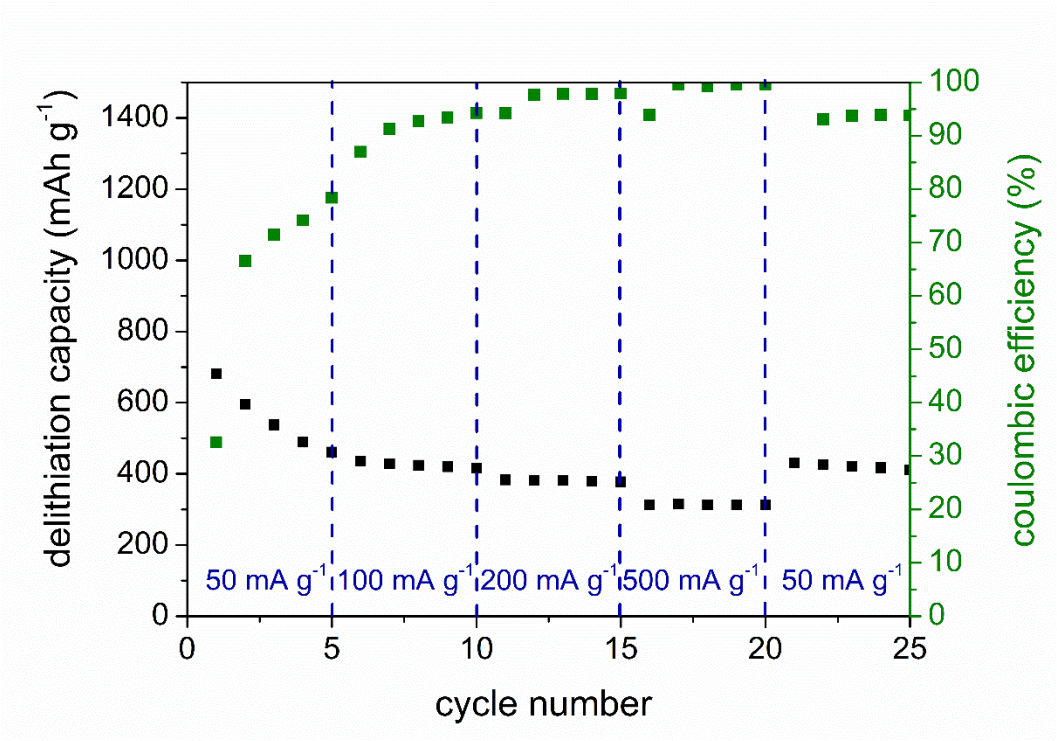

Fig. S-7 Delithiation capacity of SiP during cycling at different current densities at 50 (C/60), 100 (C/30), 200 (C/15) and 500 mA g^{-1} (C/5).

References:

[1] T. Wadsten, *Acta Chem. Scand.*, 1969, **23**, 2532–2560.