Supporting Information

Reaction Behavior of a Silicide Electrode with Lithium in an Ionic-Liquid Electrolyte

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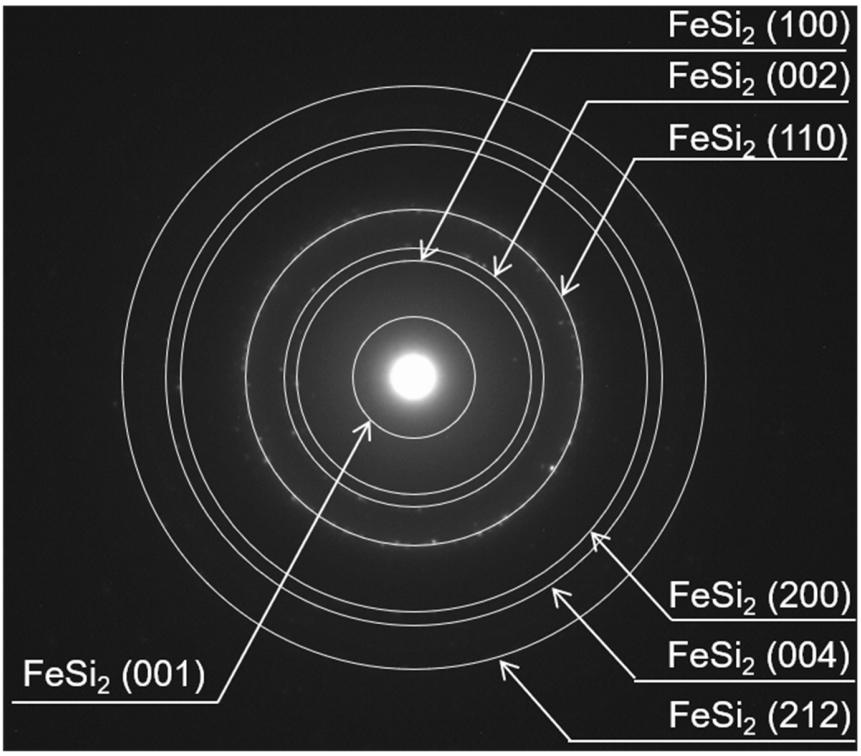

Figure S1. SAED pattern of the $FeSi_2$ electrode after the 5th cycle in 1 M LiFSA/Py13-FSA at 50 mA g^{-1}.

Table S1. Summary of *d*-spacings and crystal phase data derived from SAED analysis of the $FeSi_2$ electrode (Figure S1). The table includes ICSD standard d-spacing values of $FeSi_2$ (01-073-1843).

SAED	ICSD	
d-spacing / nm	*d*-spacing / nm	Crystal phase (*h k l*)
0.5220	0.5128	$FeSi_2$ (0 0 1)
0.2708	0.2684	$FeSi_2$ (1 0 0)
0.2477	0.2564	$FeSi_2$ (0 0 2)
0.1901	0.1898	$FeSi_2$ (1 1 0)
0.1347	0.1342	$FeSi_2$ (2 0 0)
0.1284	0.1282	$FeSi_2$ (0 0 4)
0.1086	0.1087	$FeSi_2$ (2 1 2)

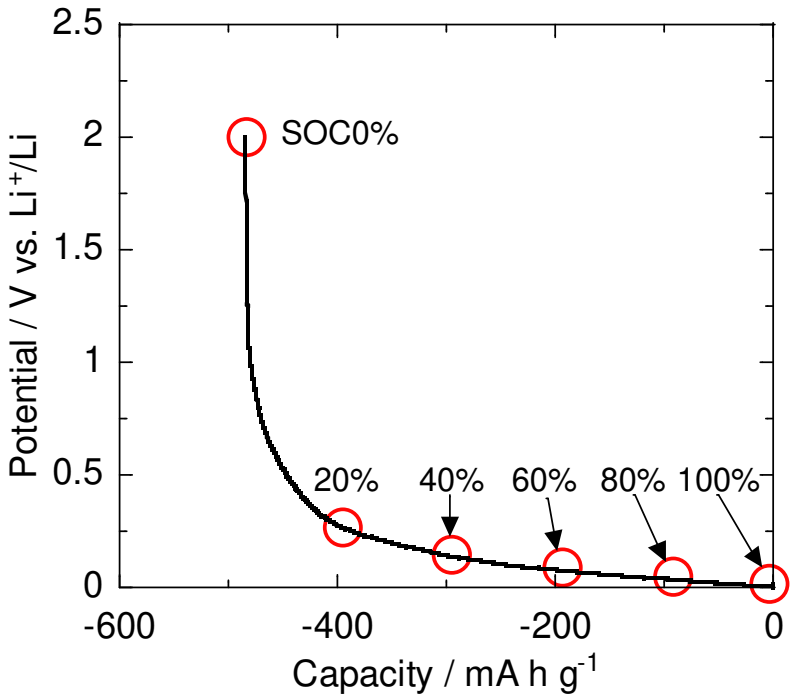

Figure S2. Charge curve of the $FeSi_2$ electrode during the 5th cycle in 1 M LiFSA/Py13-FSA at 50 mA g^{-1}.

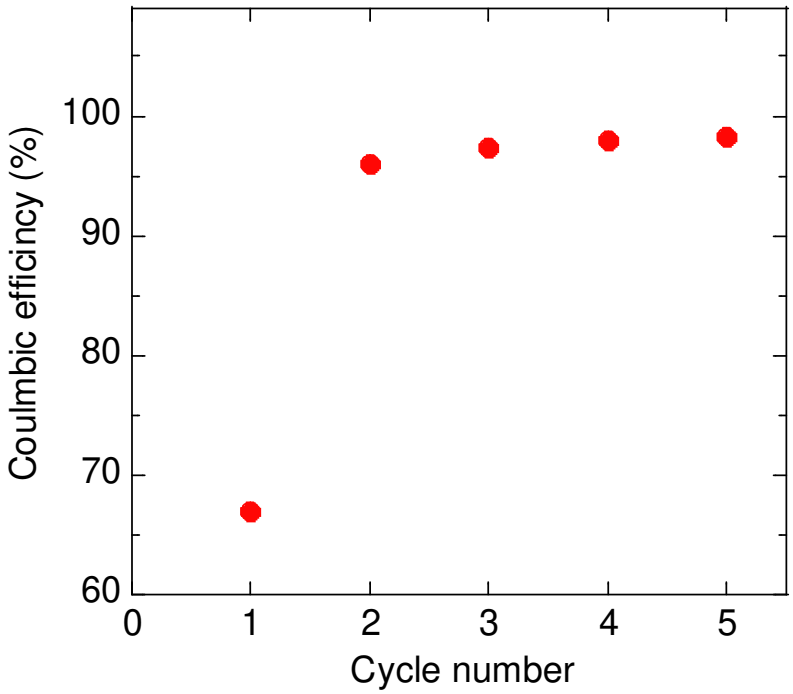

Figure S3. Cycle-dependency of Coulombic efficiency of the $FeSi_2$ electrode in 1 M LiFSA/Py13-FSA at 50 mA g^{-1}.

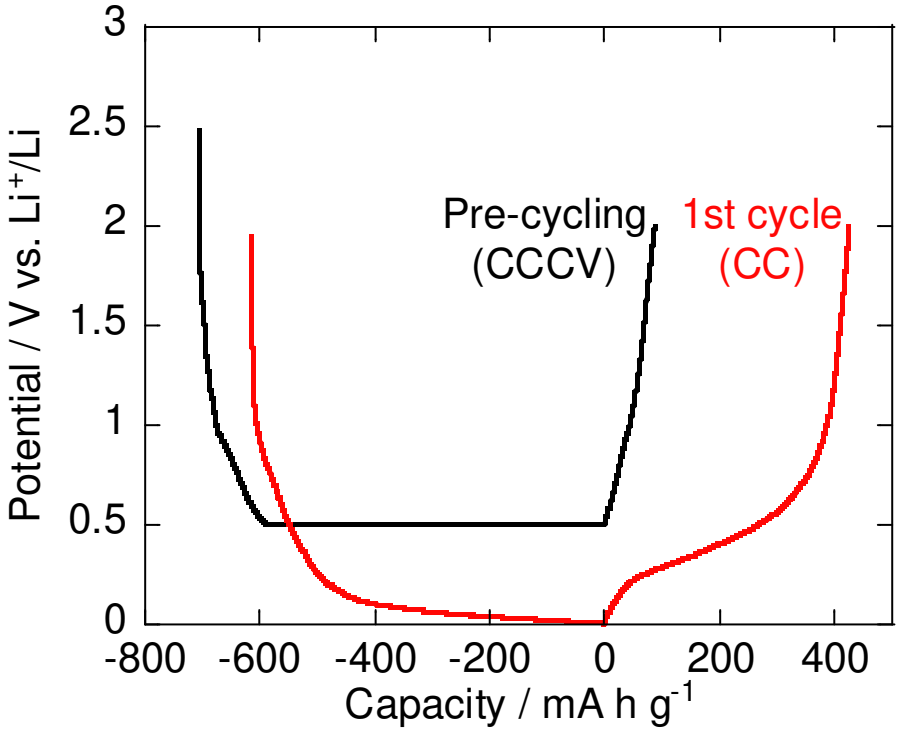

Figure S4. First charge-discharge curve of the $FeSi_2$ electrode after pre-cycling in 1 M LiFSA/Py13-FSA at 50 mA g^{-1}.