

Electronic Supplementary Information

Photo-Cross-Linkable Polymeric Binder for Silicon Anodes in Lithium Ion Batteries

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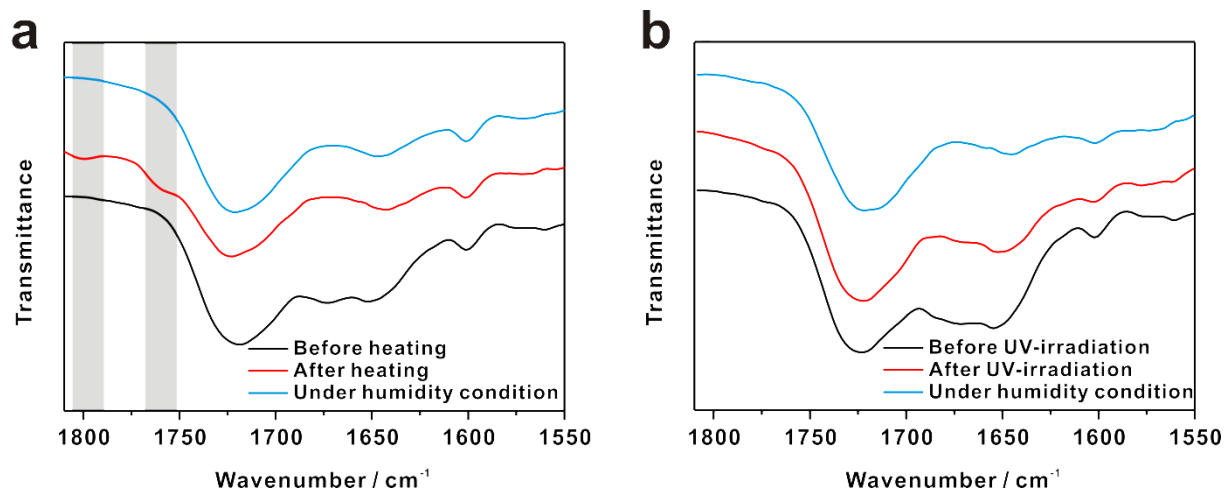


Fig. S1 FT-IR spectra of PAA-BP binder of (a) reversible thermal cross-linking (b) irreversible photo-cross-linking. In Fig. S1a, the peak corresponding to the anhydride at 1760 and 1800 cm⁻¹ indicated by grey region disappeared under humidity condition, resulting in reversible cross-linking. In contrast, no changes were observed in Fig. S1b, indicating the irreversible cross-linking can endure the environment changes. The PAA-BP film was firstly dried at 150 °C for 2 h under vacuum and then placed in a humidity chamber at a relative humidity of 80% for 24 h.

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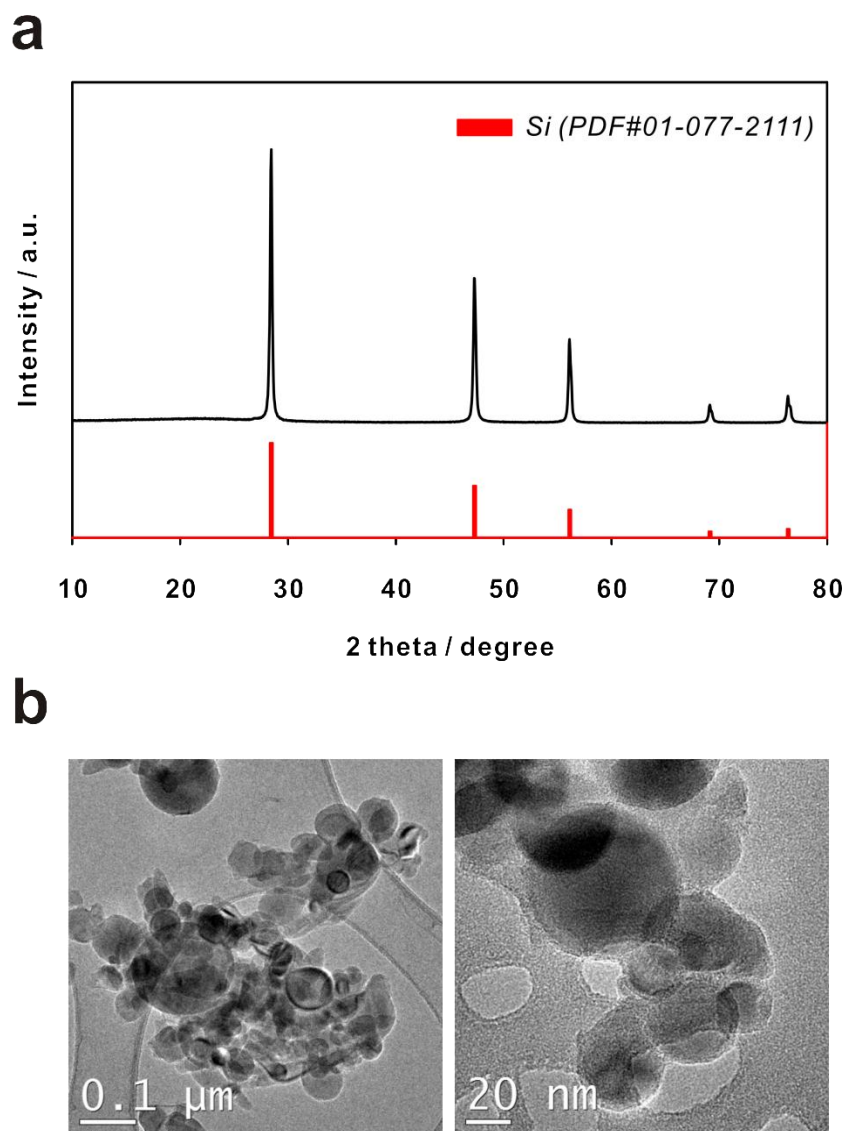


Fig. S2 (a) XRD pattern and (b) TEM images of carbon-coated silicon active-material used in the study.

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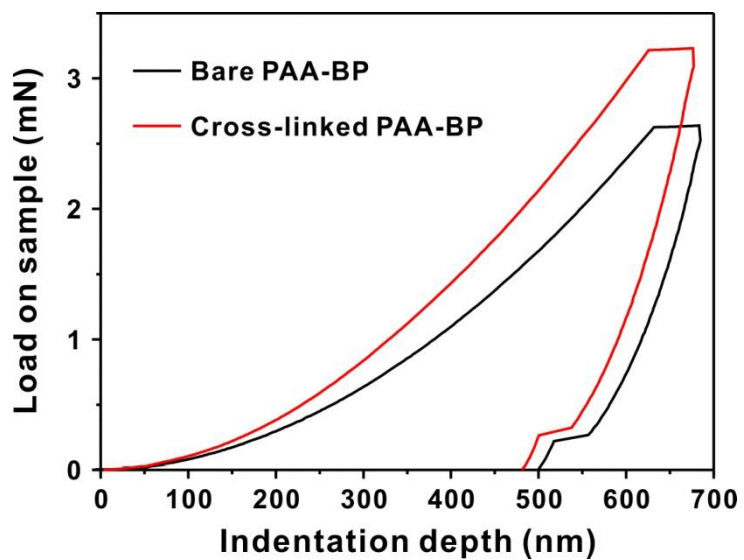


Fig. S3 Representative load-indentation depth curves of bare and cross-linked PAA-BP measured by nanoindentation.