Supporting information for article:

Hard X-ray-induced damage on carbon–binder matrix for *in situ* synchrotron transmission X-ray microscopy tomography of Li-ion batteries

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Series of TXM images are captured to monitor radiation damage on Ge$_{0.9}$Se$_{0.1}$ electrode in electrolyte environment at 11.2 keV (after Ge K-edge) and 11 keV (before Ge K-edge). The continuous TXM images are obtained at (a) 11.2 keV with 1 s exposure time and (b) 11 keV with 3.9 s exposure time. The TXM images show initial (left) and 30 min (middle) irradiated Ge$_{0.9}$Se$_{0.1}$ particle cluster with 37.7 nm pixel resolution. The increment of particle distances is tracked by the accumulated X-ray dose (right). The results show that the expansion of Ge$_{0.9}$Se$_{0.1}$ electrode at two energy levels is similar, which demonstrates that the damage is primarily from the absorption of photons by the carbon/binder matrix.