

Abstract Submitted  
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**Hard X-ray tomography as a non-destructive technique to study the growth of lithium dendrites in lithium polymer batteries**<sup>1</sup> KATHERINE HARRY, UC Berkeley, DANIEL HALLINAN, DILWORTH PARKINSON, ALASTAIR MACDOWELL, Lawrence Berkeley National Laboratory, NITASH BALSARA, UC Berkeley — Lithium metal electrodes have the highest energy density of any battery electrode technology and are, therefore, being considered for electric vehicles. However, lithium metal changes its shape under cycling, resulting in the growth of lithium metal dendrites through the electrolyte that eventually short-circuit the cell. While polystyrene-block-poly(ethylene oxide) copolymer electrolytes extend cell life by suppressing dendrite growth, dendrites eventually do grow. We show that hard X-ray microtomography is a non-destructive tool for studying the formation and growth of lithium dendrites at the interface between lithium metal and a block copolymer electrolyte.

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