

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Toward Atomic-Resolution Electron Microscopy of Polymer Crystals NITASH BALSARA, XI JIANG, DOUGLASS GREER, ANDREW MINOR, KENNETH DOWNING, RONALD ZUCKERMANN, Lawrence Berkeley National Laboratory — We aim to produce images of synthetic polymers with atomic resolution using electron microscopy. This is inherently challenging because polymers are unstable under the electron beam. We are thus forced to use low exposure in order to minimize beam damage. Our experiments were conducted on crystalline sheets formed by self-assembly of an amphiphilic diblock copolypeptoids in water. Sophisticated averaging algorithms were used to extract high resolution information from low exposure images, where Fourier transforms along orthogonal directions will be used to align individual images. Super-position of images results in images that appear to represent atoms. On going work is aimed at confirming this. Methods to extend our work to other synthetic polymers will be discussed.

Nitash Balsara
University of California, Berkeley

Date submitted: 11 Nov 2016

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