

Abstract Submitted  
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**Depth-Resolved X-Ray Reciprocal Space Mapping for Surface Microstructure Measurements** FRANCES WILLIAMS, Norfolk State University, KELI HU, QIGUANG YANG, UltraHighScore LLC, XIN ZHAO, Vertical Carbon Technologies, Inc., ANNE-MARIE VALENTE-FELICIANO, CHARLES REECE, Thomas Jefferson National Accelerator Facility — A depth-resolved X-ray reciprocal space mapping technology has been developed to investigate crystal microstructures from top of the surface to few micrometers under the surface. The depth-dependent microstructures were successfully used to reveal structure evolution occurred in both crystal-growth process and post growth treatments in few different thin films and/or crystals. Our results show that depth-resolved reciprocal space mapping is a powerful tool to monitor thin film and/or crystal microstructures and provide important information for optimization of the crystal-growth process and post-growth treatments.

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