

Abstract Submitted  
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**Light Induced Surface Degradation of  $\text{CH}_3\text{NH}_3\text{PbBr}_3$  Single Crystals**<sup>1</sup> BENJAMIN ECKER, CONGCONG WANG, University of Rochester, HAOTONG WEI, JINSONG HUANG, University of Nebraska-Lincoln, YONGLI GAO, University of Rochester — Organometallic trihalide perovskites have shown great potential for solar cell device applications, and numerous studies have investigated their long term stability in various environments. In this study we investigated the light induced surface degradation on  $\text{CH}_3\text{NH}_3\text{PbBr}_3$  crystals by using x-ray photoelectron spectroscopy (XPS) and scanning electron microscopy (SEM). Substantial surface degradation became apparent during the exposure as observed in the elemental core level spectrums. There were significant losses in the surface bromine and nitrogen concentrations. The most interesting core level change however was the production of a new form of lead on the surface, which is most like in the form of metallic lead. The new metallic lead component saturated and was approximately two times the value of the perovskite lead component. SEM images were also taken to further confirm the surface degradation.

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Benjamin Ecker  
University of Rochester

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