

Abstract Submitted
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Electric Field Effects on Photoconductivity and Photoluminescence in MAPbI₃ Perovskite¹ CHUANG ZHANG, DALI SUN, ZEEV VALY VARDENY, Department of Physics Astronomy, University of Utah — The origin of “hysteresis behavior” in I-V response of MAPbI₃ perovskite devices is still under debate. We characterized this electric field induced hysteresis by monitoring the changes of photoconductivity (E-PC) and photoluminescence (E-PL) from the MAPbI₃ film deposited on inter-digital electrodes. Interestingly, we observed a “sign change” in both E-PC and E-PL effects, depending on the applied field and temperature. The E-PC/E-PL could be “frozen” when cooling the device under external field to lower temperature. These results reveal multiple possible reasons for the intrinsic hysteresis behavior in MAPbI₃ perovskite devices. This work was supported by the Utah NSF-MRSEC program DMR 1121252.

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