

Abstract Submitted  
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**Spin decoherence and dephasing in metal organic perovskites** N. GUNDLACH, P. ODENTHAL, Y. YAO, C. ZHANG, D. SUN, Univ of Utah, ZG. YU, Washington State University, Z. V. VARDENY, Y. S. LI, Univ of Utah — Metal organic perovskites have recently generated significant interest, particularly for photo-galvanics. Experimental results have shown several characteristics of perovskite materials that make them viable for spintronic applications. Our previous research has revealed that  $\text{CH}_3\text{NH}_3\text{PbI}_3$  exhibits a long spin lifetime, and determined the electron and hole g-factors. Further study revealed a nonmonotonic dependence of the ensemble transverse spin lifetime  $T_2^*$  on applied transverse magnetic field. While g-factor distribution leads to spin dephasing that generally decreases  $T_2^*$  with increasing transverse magnetic field, the nonmonotonic dependence suggests that carrier spin dynamics are strongly affected by internal local magnetic fields. We will present our systematic study of the spin lifetimes in transvers and longitudinal magnetic fields, and discuss possible factors that contribute to spin decoherence and dephasing in the lead-halide perovskites. We acknowledge funding from the University of Utah and the Department of Energy Office of Science (DE-SC0014579).

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