

MAR17-2016-009092

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

Symmetry controlled optical and magnetic properties in 2D antiferromagnets¹

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Layered magnets have emerged as a new focal point in current 2D material research due to the possibility of hosting magnetism in their thin-film limit. In this talk, I will discuss some symmetry controlled properties of 2D antiferromagnets. I will first show that magneto-optic effects can be generated and manipulated by controlling crystal symmetries through a gate voltage in layered collinear antiferromagnets. I will then show that the intrinsic symmetry of honeycomb antiferromagnets also allows a magnon spin Nernst effect. These properties would be useful for novel spintronic devices.

¹We acknowledge support from DoE BES, AFOSR, and NSF EFRI.