

Abstract Submitted  
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**Effect of Interlayer Coupling on Field-Induced Magnon Decays in Square-Lattice Antiferromagnet**<sup>1</sup> WESLEY FUHRMAN, UC Irvine, MARTIN MOURIGAL, Johns Hopkins, MICHAEL ZHITOMIRSKY, CEA Grenoble, SASHA CHERNYSHEV, UC Irvine — We study the high-field magnon dynamics in the quasi-2D tetragonal Heisenberg antiferromagnet. Within spin-wave theory, we show that non-zero interlayer coupling mitigates singular corrections to the excitation spectrum occurring above the threshold field that would otherwise require a self-consistent approach beyond the Born approximation. Increasing field yields widening two-magnon sidebands with significant shifting of the spectral weight away from the quasi-particle peak. We examine the dynamic structure factor with interlayer coupling corresponding to realistic materials.

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