

Abstract Submitted
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Ferrimagnetic resonance study on photo-induced magnetism in hybrid magnetic semiconductor $V(\text{TCNE})_x$, $x \sim 2$ film¹ JUNG-WOO YOO, R. SHIMA EDELSTEIN, D. M. LINCOLN, A. J. EPSTEIN, The Ohio State University — The $V(\text{TCNE})_x$, $x \sim 2$ is a fully spin-polarized magnetic semiconductor, whose magnetic order exceeds room temperature ($T_c > 350$ K), and electronic transport follows hopping mechanism through the Coulomb energy split π^* subband. In addition, it was determined that this material has thermally reversible persistent change in both magnetism and conductivity driven by the optical excitation [1]. Here, we report detailed investigation on photo-induced magnetism in $V(\text{TCNE})_x$ by employing ferrimagnetic resonance (PIFMR) study with an in-situ light illumination. Upon optical excitation ($\lambda \sim 457.9$ nm), the FMR spectra display substantial change in their linewidth and resonance field. Angular dependence analyses of line shift indicate the increase of uniaxial anisotropy field in the film caused by the light irradiation. The results demonstrated that the change in overall magnetic anisotropy by the illumination plays an important role in inducing photo-induced magnetism in (TCNE) class magnet.

[1] J.-W. Yoo, et al. to be published in Phys. Rev. Lett.

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