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Magneto-optical studies of transition-metal dichalcogenides using visible pump, mid-infrared probe measurements[1] JUNGRYEOL SEO, MUMTAZ MURAT ARIK, ALOK MUKHERJEE, CHUAN ZHAO, PAYAM TAHERI, BRETT BLIZZARD, HAO ZENG, JOHN CERNE, Physics Dept., University at Buffalo, Buffalo, NY, USA, MUSTAFA EGINLIGIL, Institute of Advanced Materials, Nanjing Tech University, Nanjing, Jiangsu, China, TING YU, Nanyang Technological University, Singapore — We report systematic magneto-optical measurements on transition-metal dichalcogenides such as MoS2 and WS2. We perform polarization-sensitive photoluminescence measurements when populating different valleys as a function of temperature. By measuring the mid-infrared (110–230 meV) Faraday and Kerr signals while populating different valleys using polarized visible light at zero magnetic field, we test time-reversal symmetry breaking in these materials. This work is supported by NSF-DMR1410599.

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