

Abstract Submitted
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Spin-Orbit Coupling Effects on Excitonic States in Transition Metal Dichalcogenides¹ GAOFENG XU, University at Buffalo, BENEDIKT SCHARF, University of Regensburg, ALEX MATOS-ABIAGUE, IGOR ZUTIC, University at Buffalo — Strong Coulomb interactions in two-dimensional materials made of transition metal dichalcogenides (TMDs) have pronounced correlation effects in their optical properties. In particular, excitonic states have significant signatures in the absorption spectrum of TMD layer structures. These signatures can be affected by the sizable spin-orbit coupling (SOC) resulting from the lack of inversion symmetry of a single-layer TMD deposited on a substrate. Starting from a single-particle effective model, we use Bethe-Salpeter equation to calculate the effects of the SOC on both the excitonic states and corresponding optical absorption of the single-layer TMD.

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