

Abstract Submitted
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Novel valley and spin physics in monolayer MoS₂¹ DI XIAO, Oak Ridge National Laboratory, G.B. LIU, The University of Hong Kong, WENGUANG ZHU, University of Tennessee & Oak Ridge National Laboratory, XIAODONG XU, University of Washington, WANG YAO, The University of Hong Kong — We show that the valley Hall effect and valley-dependent optical selection rule can be realized in monolayer MoS₂, which is a direct bandgap semiconductor with non-central valleys. In addition, spin-orbit coupling in this materials is large, which gives rise to novel spin physics tied to the valley degree of freedom.

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