

Abstract Submitted  
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**Spin-resolved photoemission study of epitaxially grown MoSe<sub>2</sub> and WSe<sub>2</sub> thin films** SUNG-KWAN MO, YI ZHANG, ZAHID HUSSAIN, Advanced Light Source, LBNL, ZHI-XUN SHEN, SIMES, SLAC & Stanford University, MAURO FANCIULLI, STEFAN MUFF, J. HUGO DIL, Ecole Polytechnique Federale de Lausanne, CHOONGYU HWANG, Pusan National University — We report spin-resolved photoemission results from MoSe<sub>2</sub> and WSe<sub>2</sub> thin films grown by molecular beam epitaxy on bilayer graphene substrates. We found spin polarization only in single- and tri-layer samples, but not in bi-layer sample, as expected from the inversion symmetry breaking and strong spin-orbit coupling inherent in few-layer thick transition metal dichalcogenides. The spin polarization is mostly along the out-of-plane direction of the sample surface and it is strongly dependent on the light polarization as well as the measurement geometry. This reveals intricate coupling between spin and orbital degrees of freedom in this material class. \*S.-K. Mo et al. *J. Phys.: Condens. Matter* 28, 454001 (2016).

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