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Tuning the valley polarization of localized excitons in atomically thin materials CHITRALEEMA CHAKRABORTY, LIANGYU QIU, KENNETH GOODFELLOW, SAJAL DHARA, NICK VAMIVAKAS, University of Rochester — Single photon emitters localized in atomically thin materials have begun to receive much attention from the solid-state quantum optics and quantum photonics communities. In this work we study the quantum emitters present in single layer tungsten diselenide and perform polarization resolved photoluminescence measurements in order to understand the electronic structure of the confined excitons. The emitters are embedded in a van der Waals heterostructure-based diode where quantum confined Stark shift from the excitons is observed. Moreover, we have also demonstrated tunable valley polarization of the confined excitons as a function of the applied electric field.

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