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Electronic structure of V-doped WSe₂

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Spintronics is an energy-efficient alternative to conventional electronics, with potential applications in areas such as classical and quantum computing. Vanadium-doped $2H\text{-WSe}_2$, a layered transition metal dichalcogenide, is a possible candidate for achieving the desired magnetic semiconducting behavior at room temperature with gating tunability. We grew the material using chemical vapor transport with different vanadium doping concentrations and conducted a comprehensive electronic structure study using soft X-ray, VUV and 11 eV-laser angle-resolved photoelectron spectroscopy (ARPES). Our results demonstrate how low V doping concentrations influence the electronic structure of WSe₂.

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