

Electronic Properties of Transition Metal Monochalcogenides

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Transition metal monochalcogenides are a new addition to the ever-growing library of 2D materials. Combining the corrugated structure of black phosphorus with the dielemental nature of the majority of other two-dimensional structures, these materials possess a highly non-trivial band structure with multiple valleys located away from the high-symmetry points. Because of this, studying these materials theoretically is a challenging task which is best accomplished by a combination of *ab initio* calculations and analytical methods. The purpose of this talk is to provide an overview of these fascinating compounds and highlight the properties which set them apart from other 2D materials. In addition, potential applications, which depend strongly on the material properties, will be introduced.

- [1] A. S. Rodin, Lidia C. Gomes, A. Carvalho, A. H. Castro Neto, "Valleytronics in tin (II) sulfide", Phys. Rev. B (2016), Accepted

