

Abstract Submitted
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Transport Properties Across Misoriented Bilayer MoS₂ using Ab-initio Calculations¹ KUAN ZHOU, SUPENG GE, DARSHANA WICKRAMARATNE, ROGER LAKE, Univ of California - Riverside — Fabrication of electrical and opto-electronic devices with vertically stacked transition metal dichalcogenides (TMDCs), leads to interfaces that are misoriented. Prior experimental and theoretical studies of misorientation in graphene bilayers demonstrated that a few degrees of misorientation is sufficient to decouple the low energy states of the individual layers. Experimental and ab-initio calculations have shown the bandgap of misoriented bilayer MoS₂ remains indirect. The transport properties across the misoriented interface of the bilayer TMDCs is currently unknown. The coherent interlayer transmission across two stacks of MoS₂ calculated for unrotated and rotated MoS₂ bilayers using ab-initio calculations. The energy dependence of the interlayer transmission is analyzed..

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