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Virtual SEMINAR SERIES

Wednesday, March 10, 2021
Seminar Presentation: 11:00am – 12:00pm PST
Zoom Seminar

"Quantum Material Devices at the Nanoscale"

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Abstract: The manipulation and harnessing of electronic states in quantum materials has the potential to revolutionize computation, sensing, storage, and communications, thus impacting multiple facets of our everyday lives. In this talk I will discuss my group's recent experiments with Bernal stacked bilayer and trilayer graphene, highly versatile quantum materials with electronic properties that are promising for quantum information technologies. Specifically, I will focus on two sets of experiments that utilize confinement, nanoscale visualization, and spectroscopy to reveal new properties of the surface states hosted by bilayer graphene (BLG) and trilayer graphene (TLG) devices. In one experiment, we use scanning tunneling microscopy to corral BLG electrons and then visualize their wave functions and quantum interference. In a second experiment, we use atomically resolved spectroscopy to measure a giant and tunable topological magnetic moment in TLG devices. The results from these experiments advance fundamental understanding of quantum material devices towards their potential application for future quantum technologies.

Biosketch: Jairo Velasco Jr. is an Assistant Professor of Physics at the University of California Santa Cruz. His research interests include the study of electronic properties and structure of quantum materials. He received his PhD in physics from the University of California Riverside in 2012. He was then a University of California President's Postdoctoral Fellow in the Department of Physics at the University of California Berkeley. Dr. Velasco is a recipient of the NSF early CAREER award.

Register to receive a zoom link the day of the seminar:
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