Old Dominion University
Department of Physics

Colloquium

Thursday, February 21, 2019

"Scanning tunneling microscopy study of point defects and interfaces in 2D materials"

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Abstract:

Emerging two-dimensional (2D) materials, such as graphene and atomically thin transition metal chalcogenides (TMDs), exhibit many novel physical properties that are critical for their potential applications in electronics, optics and energy. These novel properties are usually associated with or governed by specific nanostructures in the 2D materials, such as topological point defects and interfaces (e.g. edges and domain boundaries). In this talk, I will present our recent scanning tunneling microscopy and spectroscopy (STM/STS) study of point defects and interfaces in 2D quantum materials. I will show atomic-scale characterization of point defects in few-layer PtSe2 and interfaces in MoS2/WS2 heterostructures, as well as their unique electronic structures. I will further discuss how the defects and interfaces are affected and controlled by external stimuli. Particularly, I will present our recent findings on the shape and size evolution and the associated kinetics of monolayer vacancy islands on TiSe2 surfaces under electrical stressing.

Presentation: ECSB 1202 @ 3:00 pm (Engineering & Computational Sciences Building)
Refreshments: ECSB Atrium @ 2:30 pm

All interested persons are cordially invited to attend