“Emergent physics in atomic membranes”

Two-dimensional materials combine many remarkable properties in a single, atomically thin package. Not only are 2D materials naturally occurring quantum well systems with diverse electronic properties, but they also are the ultimate representations of a thin mechanical sheet. In this talk, I will discuss some of the fascinating emergent physics of 2D materials and heterostructures, touching on everything from quantifying many-body exciton binding energy in a 2D quantum well, to the impact of defects on lower dimensional interfaces, to molecular scale devices from 2D heterostructures, to discussing the mechanics of atomic membranes and 2D systems crumpled into 3D.