

YY6.06/W6.06

TEM Imaging and Simulations of Nanostructures in Ultra-thin Materials

Wei L. Wang^{1,2}, Efthimos Kaxiras^{1,2}, Robert Westervelt^{1,2}

1. Physics, Harvard University, Cambridge, MA, USA, 2. SEAS, Harvard University, Cambridge, MA, USA

Ultra-thin materials such as graphene are an important class of function materials. They also provide atomically simple and clean systems that are well-suited for transmission electron microscopy (TEM). With the latest improvement made by aberration correction, reliable interpretation of TEM images become more practical and can be well combined with image simulation and first-principles simulations to understand the configuration and dynamics of various atomic structures such as intrinsic ripples, development of defects, and chemistry at the edges. We demonstrate the usefulness of such combined study with results on various nanostructures in ultra-thin materials.