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Scanning Tunneling Microscopy and Spectroscopy of Graphene on NbSe₂ SHENGQIANG HUANG, ZHIMING ZHANG, MATTHEW YANKOWITZ, BRIAN J. LEROY, Univ of Arizona — A wide range of phenomena can be induced in graphene by creating vertical heterostructures with other two-dimensional materials. NbSe₂ is a layered transition metal dichalcogenide that exhibits a charge density wave transition below $T_{cdw} = 33$ K and then becomes superconducting below $T_c = 7.2$ K. By placing monolayer graphene on NbSe₂ the interplay between charge density waves, superconductivity and Dirac fermions can be explored. We use low temperature scanning tunneling microscopy and spectroscopy to study the electronic properties of this van der Waals heterostructure. We observe the coexistence of a moiré pattern and charge density wave in the graphene on NbSe₂ heterostructure.

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