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**Peierl Transition Temperature and ac Conduction Study in Few Layer Blue Bronze ($K_{0.3}MoO_3$) Crystals** MEHDI JAMEI, OSCAR VAZQUEZ, JAIRO VELASCO, ALEX ZETTL, MICHAEL CROMMIE, Univ of California - Berkeley — $K_xMoO_3$ ($0.24<x<0.3$) or Potassium Molybdenum Blue Bronze is a monoclinic crystal with a layered structure. The presence of sliding charge-density waves (CDW) in Blue Bronze, and its potential to be cleaved and exfoliated, make this material an interesting candidate to investigate in 2D form. In this study, Blue Bronze crystals were grown by the electrochemical method. This method involves passing a DC current through a mixture of $MoO_3$ and $K_2MoO_4$, while the temperature is set right above the melting point. then exfoliated thin flakes (below 100nm) of Blue Bronze from these crystals and fabricated 2, 3 and 4-terminal devices using e-beam lithography. An Indium-Chrome-Gold tri-layer was used as the metal contact. Nitrogen plasma treatment before depositing the metal proved to make a dramatic improvement in the contact resistance. We studied the effect of thickness on the Peierl transition temperature. The ac-conductivity of these crystals was measured in cryogenic temperature. Also we investigated the induction of CDW into Graphene in a Blue Bronze-Graphene stack structure.

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