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Scanning Tunneling Microscopy Study on Delafossites PdCoO₂ and PdCrO₂.¹ XINTONG LI, Tsinghua Univ, HIROYUKI INOUE, HUIWEN JI, ROBERT J. CAVA, ALI YAZDANI, Princeton University — There is a resurgence of interests on Delafossite such as PdCoO₂, which have layered two-dimensional electrons of Pd with exceptionally high conductivity separated by oxide layers. In this compound there are recent reports that electron transport is in the hydrodynamic regime. Another member of the Delafossite family, PdCrO₂ has also been of considerable interest because of its complex spin ordering in the CrO₂ layers as clarified by scattering experiments, which could be responsible for its intriguing magnetotransport properties. Here, we will report high-resolution scanning tunneling microscopy and spectroscopic mapping of both PdCoO₂ and PdCrO₂ Delafossites. On both compounds, we study scattering interference of electrons from defects and relate our results to surface band structure measurements by ARPES studies. By contrasting our results on these two compounds, we aim to determine how neighboring oxide layer with magnetism influences electrons in the two-dimensional Pd layer.

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