Delafossite oxides are layered compounds, which can be thought of as natural heterostructures of triangularly coordinated metallic sheets and transition metal oxide blocks. A fascinating range of electronic states can be found both in their bulk and on their surfaces, including extremely high conductivity (1) in PtCoO2 and PdCoO2, maximal Rashba-like spin-splitting (2) on the transition metal terminated surfaces of PtCoO2, PdCoO2 and PdRhO2, Stoner ferromagnetism (3) on the Pd-terminated surface of PdCoO2 and, perhaps most remarkably, an intertwined spin-charge response due to a Kondo coupling between metallic and Mott insulating layers (4) in PdCrO2. Our group has investigated these states experimentally with transport measurements and angle resolved photoemission, and theoretically with first principles calculations and model Hamiltonians, where applicable. I will show how in a number of cases the simplicity and cleanliness of the materials allows us to pinpoint to the underlying cause for the remarkable electronic behaviour, and in turn to use delafossites as model systems to understand complex phenomena.


Tuesday, November 5, 2019 11:00am - 12:00pm
IST Austria Campus Heinzel Seminar Room / Office Bldg West (I21.EG.101)

This invitation is valid as a ticket for the IST Shuttle from and to Heiligenstadt Station. Please find a schedule of the IST Shuttle on our webpage: https://ist.ac.at/en/campus/how-to-get-here/ The IST Shuttle bus is marked IST Shuttle (#142) and has the Institute Logo printed on the side.