Contribution ID: **278** Type: **Poster**

【259】Interaction of cobalt with the $KTaO_3(001)$ surface

Tuesday, 31 August 2021 19:08 (1 minute)

Redox chemistry on perovskite surfaces attracts attention due to these materials'promising catalytic properties and the presence of ferroelectricity in many perovskites. In this study, STM and XPS have been used for investigating the interaction of cobalt with the $KTaO_3(001)$ surface. In UHV conditions, the freshly cleaved $KTaO_3$ surface was exposed to water vapor prior to cobalt deposition for intrinsic surface polarity compensation and to create a uniform (2x1) reconstruction. Interaction of cobalt with such surfaces was studied under oxidizing and reducing conditions and as a function of the temperature. The stability of the cobalt in its metallic, oxide, and hydroxide phases was studied and the cluster size was evaluated.

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Session Classification: Poster Session

Track Classification: Surfaces, Interfaces and Thin Films