sist of a single phase of Rh_2O_3 and that the transition from the oxide to the metal substrate is quite narrow. Similar experimental methods have been used to investigate oxide growth on other metal surfaces with atom probe techniques.[30]

Summary

The FIM and atom probe are obviously powerful research tools for investigations of a variety of surface phenomena. Although other instruments can now resolve individual atoms on a surface, the atom probe FIM remains unique in its ability to control the number of individual adatoms on a perfectly defined single-crystal plane, to manipulate the size of clusters on surfaces on an atom-by-atom basis, and to determine the chemical identity of pre-selected atoms. Combined with experimental methods that permit direct observation of adatom and cluster motion under precisely controlled conditions of temperature, these attributes have led to fundamental advances in our understanding of various surface processes. By providing a brief overview of a few selected applications from recent investigations, we hope to have demonstrated the level of detail that can be obtained in investigations of atomic processes on surfaces and to have conveyed some of the excitement that has been generated by the observation of new and unexpected surface phenomena.

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