

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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Gary L. Kellogg received his PhD degree in physics in 1976. Since that time he has been a member of the technical staff in the Surface and Interface Science Department at Sandia National Laboratories. His principal research interests involve the application of the field ion microscope and atom probe mass spectrometer to problems in surface physics and surface chemistry. He is a fellow of the American Physical Society and is a member of the International Field Emission Society (vice president 1992–93), American Vacuum Society (chairman, New Mexico Chapter, 1982–83), and Microbeam Analysis Society.

Tien T. Tsong received his PhD degree in physics from Pennsylvania State University under Erwin W. Müller in 1966. Last summer he took an early retirement from the same university as distinguished professor emeritus. He is now a distinguished research fellow and the director of the Institute of Physics, Academia Sinica in Taipei, Taiwan, ROC. He is a fellow of the American Physical Society and a member of the National Academy of Science of ROC.

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