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Materials Research Society Symposium Proceedings: Volume 654

Editors: C. Barry Carter, Xiaoqing Pan, Kurt Sickafus, Harry L. Tuller and Tom E. Wood
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Structure-Property Relationships of Oxide Surfaces and Interfaces

Symposium held November 27–29, 2000, Boston, Massachusetts, U.S.A.

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PREFACE

We stand at the beginning of a new era in the study of interfaces in materials science. Dramatic advances in electron microscopy, the development of atomic force microscopy, and the development of scanning tunneling microscopy have enabled a view of the infinitesimal that hitherto could only be imagined. Concurrently, improvement in computer modeling capabilities and the refinement of energy-structure relationships has led to the capability of accurately predicting structures and energies of complex interfaces. This symposium sought to bring together researchers from the areas of surface characterization and modeling science, the experimentalist and the theoretician, to focus their art on developing an understanding of the structure-property relationships of oxide surfaces and interfaces.

The symposium proved highly successful in bringing together researchers from distinctly dissimilar backgrounds to focus on the interfaces of oxide-based materials. Researchers in the areas of composite materials, materials synthesis, microscopy, defect chemistry and structure, nanomaterials technologies, thin film synthesis and characterization, computer modeling, structural characterization and properties measurement of surfaces and internal interfaces collected together for this symposium. Attention was first directed to advances in computer modeling of oxide interfaces along with examples of applications of these techniques. A series on structural characterization of surfaces and interfaces utilizing advanced microscopic techniques was provided. The final series addressed the measurement of properties of real interfaces (diffusion, mechanical, electrical and magnetic). In total 99 presentations were made, 53 of which were paper presentations and 46 were poster presentations. Greatly appreciated were the interdisciplinary papers that were presented.

This volume provides a compilation of the submitted and reviewed papers from Symposium AA, the first "Structure-Property Relationships of Oxide Surfaces and Interfaces" symposium, held November 27–29 at the 2000 MRS Fall Meeting in Boston, Massachusetts. It is hoped that this is the beginning of a series of symposia addressing this important and exciting area of research.

The symposium organizers would like to thank 3M corporation and Los Alamos National Laboratories for financial support. Special thanks are also given to Janet McKernan for logistical support above and beyond the call of duty.

C. Barry Carter
Xiaoqing Pan
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