1. Record Nr. UNINA9910300430303321

Titolo	Defects at Oxide Surfaces / / edited by Jacques Jupille, Geoff Thornton
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-14367-0
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (472 p.)
Collana	Springer Series in Surface Sciences, , 0931-5195 ; ; 58
Disciplina	546.7212
Soggetti	Surfaces (Physics) Interfaces (Physical sciences) Thin films Optical materials Electronics - Materials Materials—Surfaces Chemistry, Physical and theoretical Surface and Interface Science, Thin Films Optical and Electronic Materials Surfaces and Interfaces, Thin Films Physical Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	From the Contents: Numerical simulations of defective structures -- Modeling oxygen vacancies -- Role of surface defects in photocatalysis -- Chemical activity of defects -- Nature of defects as determined by scanning probe tip-surface interactions.
Sommario/riassunto	This book presents the basics and characterization of defects at oxide surfaces. It provides a state-of-the-art review of the field, containing information to the various types of surface defects, describes analytical methods to study defects, their chemical activity and the catalytic reactivity of oxides. Numerical simulations of defective structures complete the picture developed. Defects on planar surfaces form the focus of much of the book, although the investigation of powder

samples also form an important part. The experimental study of planar surfaces opens the possibility of applying the large armoury of techniques that have been developed over the last half-century to study surfaces in ultra-high vacuum. This enables the acquisition of atomic level data under well-controlled conditions, providing a stringent test of theoretical methods. The latter can then be more reliably applied to systems such as nanoparticles for which accurate methods of characterization of structure and electronic properties have yet to be developed. The book gives guidance to tailor oxide surfaces by controlling the nature and concentration of defects. The importance of defects in the physics and chemistry of metal oxide surfaces is presented in this book together with the prominent role of oxides in common life. The book contains contributions from leaders in the field. It serves as a reference for experts and beginners in the field.