

1. Record Nr.	UNISA996466836903316
Titolo	Recent developments in analytical techniques for corrosion research // Ihsan ulhaq Toor, editor
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	9783030891015 9783030891008
Edizione	[1st edition.]
Descrizione fisica	1 online resource (303 pages) : (VI, 306 p. 142 illus., 129 illus. in color.)
Disciplina	620.11223
Soggetti	Corrosion and anti-corrosives - Research
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction --Applications of Photoelectrochemical Spectroscopy (PES) and Mott-Schottky Techniques in Corrosion Research --Voltammetry and in-situ UV-Vis Absorbance Studies for Understanding Corrosion Mechanisms --The Utilization of Scanning Electrochemical Microscopic (SCEM) Technique in Corrosion Monitoring --Electrochemical Impedance Spectroscopy: A Useful Tool for Monitoring the Performance of Corrosion Inhibitors --Applications of Liquid Cell-TEM in Corrosion Research --Applications of Electrochemical Scanning Tunneling Microscopy in Corrosion Research --Recent Trends in Applications of X-ray Photoelectron Spectroscopy (XPS) Technique in Coatings for Corrosion Protection --Applications of Atomic Force Microscopy in Corrosion Research --Applications of Erosion-Corrosion Models for the Oil and Gas Industry and Challenges --Effect of Hydrogen and Defects on Deformation and Failure of Austenitic Stainless Steel --Molecular Modeling for Corrosion Inhibitor Design --Hydrogen Embrittlement in Nickel-base Superalloy 718.
Sommario/riassunto	This book covers a wide range of advanced analytical tools, from electrochemical to in-situ/ex-situ material characterization techniques, as well as the modeling of corrosion systems to foster understanding and prediction. When used properly, these tools can enrich our understanding of material performance (metallic materials, coatings,

inhibitors) in various environments/contexts (aqueous corrosion, high-temperature corrosion). The book encourages researchers to develop new corrosion-resistant materials and supports them in devising suitable asset integrity strategies. Offering a valuable resource for researchers, industry professionals, and graduate students alike, the book shows them how to apply these valuable analytical tools in their work.
