

TABLE OF CONTENTS

PREFACE	iii
---------------	-----

Overview of Pits and Pores

Quo Vadis Porous Semiconductors?	1
<i>L. Canham</i>	
Mechanistic Aspects of Nucleation and Growth of Corrosion Pits on Metals.....	17
<i>H.-H. Strehblow</i>	
A Stochastic Model for Current Oscillations in Space and Time at the Silicon Electrode	36
<i>H. Foll, J. Carstensen, M. Christoffersen, and G. Hasse</i>	
The Early Stage of Localized Corrosion.....	49
<i>H. Bohni, J.O. Park and T. Suter</i>	

Pit and Pore Initiation

Electrochemical Dissolution of Silicon Studied via Noise Spectroscopy	60
<i>V. Parkhutik</i>	
Electrochemical Investigations of Pitting Events at Different Temperatures by Current Transients Analysis	70
<i>S. Matsch and H. Bohni</i>	
Initial Stages of Etching of Si Electrode Surfaces Investigated by Surface Infrared Spectroscopy	82
<i>Y. Kimura and M. Niwano</i>	
Solution Chemistry Effects on Stable and Metastable Pitting Corrosion of Fe-Cr Alloy.....	90
<i>S. Virtanen and W. Tobler</i>	
The Distribution of Pitting Potentials for Stainless Steels.....	100
<i>N. Laycock, S. White, and D. Krouse</i>	
Spatial Interactions Among Localized Corrosion Sites: Experiments and Modeling	115
<i>T. T. Lunt, J. R. Scully, V. Brusamarello, A. S. Mikhailov, and J. L. Hudson</i>	
Formation, Stability, and Dissolution of Low-Dimensional Systems	126
<i>W.J. Lorenz, W. Wiesbeck, and G. Staikov</i>	
Theoretical Interpretation of Anion Size Effects in Passivity Breakdown	141
<i>D. D. Macdonald</i>	
Electrochemical Properties of Fe ₂ O ₃ -Cr ₂ O ₃ Artificial Passivation Films in a HCl Solution	155
<i>K. Sugimoto, M. Son, N. Akao, and N. Hara</i>	

A Cellular Automata Simulation of the Pit Growth	162
<i>B. Malki and B. Baroux</i>	

Structures and Patterning

Electrochemically-Prepared Highly-Ordered High-Aspect-Ratio Pore Arrays and Applications	168
<i>R. Wehrspohn, A. Birner, F. Muller, K. Nielsch, J. Schilling, A. P. Li, and U. Goesele</i>	
Electrochemical Deposition of Highly Ordered Mesoporous Metal Films Using Self-Assembled Colloidal Templates	180
<i>M.A. Ghanem, P.N. Bartlett, and P.R. Birkin</i>	
AFM Induced Nanopatterning of Si Surfaces	189
<i>L. Santinacci, T. Djenizian, and P. Schmuki</i>	
Electron-Beam Induced Nanomasking for Metal Electrodeposition on Semiconductor Surfaces.....	200
<i>T. Djenizian, L. Santinacci, and P. Schmuki</i>	
Fabrication of Grooves on Aluminum Surface with Atomic Force Microscope Probe Processing	212
<i>H. Takahashi, Z. Kato, and M. Sakairi</i>	
Formation of Metal Oxide Nanotubes through a Surfactant-Mediated Method in Laurylamine / Metal Alkoxide System	227
<i>M. Adachi, Y. Murata, and M. Harada</i>	
Fabrication of Pits and Grooves on Aluminum by Laser Irradiation and Electrochemistry	238
<i>T. Kikuchi, M. Sakairi, H. Takahashi, Y. Abe, and N. Katayama</i>	
Self Assembly of Porous Silicon Layers.....	249
<i>G. Di Francia, V. La Ferrara, L. Lancellotti, and P. Morville</i>	
Electrochemical Co-Deposition of Polyaniline & Copper by Potential Pulsing.....	262
<i>M.-G. Verge and P. Schmuki</i>	

Selective Dissolution and Porous Metals

Oxide Growth in Aluminum Etch Tunnels	274
<i>R. Alwitt and H. Uchi</i>	
A Mathematical Model for the Growth of Aluminum Etch Tunnels	283
<i>K. Hebert</i>	
Stages of Anodic Oxide Film Growth on Titanium	294
<i>Y. Mueller and S. Virtanen</i>	
Analysis of Electrochemical Transient Measurements During the Initial Moments of Aluminum Oxidation	306
<i>H. Wu and K. Hebert</i>	

Towards Devices and Applications

ELTRAN(R); SOI-Epi WaferTM by Epitaxial Layer Transfer from Porous Si.....	313
<i>T. Yonehara and K. Sakaguchi</i>	
Mechanism of Pore-Enlargement in Double Porous Si Layers.....	318
<i>K. Sakaguchi, H. Kurisu, K. Ohmi, and T. Yonehara</i>	
Novel Ultrasonic Technology by Nanocrystalline Porous Silicon.....	326
<i>N. Koshida, T. Migita, Y. Kishimoto, M. Fuchigami, and H. Shinoda</i>	
Electrodeposited Hard Magnetic Nanowires with Anodized Aluminum Templates	333
<i>N. Myung, D.-Y. Park, M. Schwartz, and K. Nobe</i>	
Modelling of Electrodeposition of Copper in a Pore in CuCN-KCN Solutions	345
<i>A. Katagiri</i>	

Localized Metal Corrosion

Steady-State Model of a Hemispherical Pit Under Cathodic Protection.....	352
<i>K. N. Allahar and M.E. Orazem</i>	
The Role of Oxygen on the Stability of Crevice Corrosion.....	370
<i>M.K. Sawford, B. G. Ateya, and H. W. Pickering</i>	
Effect of Anodic Oxide Film Structure on the Prevention of Electroless Ni-P deposition on Al5052 Alloy	383
<i>S.-M. Moon, M. Sakairi, H. Takahashi, and K. Shimamura</i>	
Surface Treatment of AISI 304 and 316 Stainless Steel with Mo and Nb containing Solutions	393
<i>L. V. Taveira, H.P. Strunk, and L.F.P. Dick</i>	
Mechanism of Pit Development on Zinc exposed in Tropical and Sub-Tropical Marine Environments	401
<i>A. K. Neufeld and I. S. Cole</i>	
Pitting Corrosion of Magnetic Hard Disks.....	409
<i>A. D. Hodges, S. Jung, and T. Devine</i>	
Corrosion of TiN on 630 Stainless Steel at Alkaline pH With and Without Chloride.....	423
<i>G. Bellanger</i>	
Effect of Lead and Silicon on the Passivity of Incoloy 800 in High-Temperature Aqueous Solutions	432
<i>Y.C. Lu and R.D. Cleland</i>	
Local Chemistry and Morphology of Pores developed in 55% Al-ZnExposed to Marine Atmospheric Conditions.....	444
<i>A. K. Neufeld and I. S. Cole</i>	

Changes of Salt-Content the Hydrocarbonate Solutions and Thermal Conditions as Factors of Copper Passivation and Local Activation	453
---	-----

S. A. Kaluzina, I. V. Kobanenko, and V. V. Malygin

Influence of Polarization Scan Rate on the Pitting Potential of AISI 316L Stainless Steel in NaCl Solution.....	463
---	-----

J.M. Bastidas, C.L. Torres, J.L. Polo, and E. Cano

Techniques

Formation of Interfacial Voids in Aluminum by Oxidation and Dissolution Processes	469
---	-----

K. R. Hebert, T. Gessmann, K. G. Lynn, and P. Asoka-Kumar

Localized pH Profile of Galvanized Steel in Atmospheric Corrosion Process.....	480
--	-----

K. Noda, M. Yamamoto, H. Masuda, and T. Kodama

Open Circuit Pit Growth in Al Thin Films.....	487
---	-----

D. Lu, P. Schmutz, and G. S. Frankel

Kinetics of Pitting Corrosion in Gels.....	493
--	-----

H.S. Isaacs and G. Adzic

Laser Assisted Electrochemical Etching of Silicon – Simulations and Experiment.....	500
---	-----

R. Juhasz, P. Kleimann, and J. Linnros

Scattering Properties of Porous Silicon	509
---	-----

R. Sabet-Dariani, A. Morteza Ali, and H. Nurani

Structural Reorganization in p-Type Porous Silicon by Mild Heat-Treatment.....	515
--	-----

Y.H. Ogata, N. Yoshimi, T. Tsuboi, and T. Sakka

Evaluation of Porosity of TiO ₂ Films from Reflection Spectra	524
--	-----

T. Matsubara, and T. Oishi, A. Katagiri

Impedance Spectroscopy in the Si-HF System Including Time Dependent and Resonant Phenomena.....	531
---	-----

G. Hasse, J. Carstensen, and H. Foll

Microspectrometer of Porous Silicon	543
---	-----

G. Lammel, P. Schmuki, and P. Renaud

Porous Semiconductors

Formation and Properties of Porous InP	554
--	-----

P. Schmuki, L. Santinacci, T. Djenizian, and D. Lockwood

Optical Properties of Porous InP	567
--	-----

D.J. Lockwood, L. Santinacci, T. Djenizian, and P. Schmuki

Cathodic Decomposition and Changes in Surface Morphology of InP in HCl	576
--	-----

M. Seo, M. Aihara, and A.W. Hassel

Passivated Luminescent Porous Silicon.....	586
<i>R. Boukherroub, D. Wayner, D. Lockwood, and L. Canham</i>	
AUTHOR INDEX	602
SUBJECT INDEX	604