

PLANAR INTERFACES

Interface Characterization in the Semiconductor Industry A. C. Diebold, P. Y. Hung, J. Price, B. Foran, H. Celio, and T. Kelly	3
Elastic Anomaly in SrTiO ₃ Thin Films Grown on Si(001) J. C. Woicik, F.S. Aguirre-Tostado, A. Herrera-Gómez, R. Droopad, Z. Yu, D. Schlom, P. Zschack, E. Karapetrova, and P. Pianetta	17
Electrical, Structural, and Chemical Analysis of Defects in Epitaxial SiGe Based Heterostructures K. R. Bray, W. Zhao, L. Kordas, R. Wise, McD. Robinson, and G. Rozgonyi	23
Investigation of the Interface Between Co-Enhanced Low-Temperature Epitaxial Si and Si Substrates Y. Uchida, M. Inagaki, S. Akisawa, and K. Ishida	36
Molecular Dynamics Simulations of the Interface Between Amorphous and Crystalline Solids S. H. Garofalini and W. Li	42
Metal-Oxide Interfaces in 2 nd Generation HTS Wires: Mechanism of Epitaxial Growth of Oxide Films Mediated by a Sulfur Superstructure C. Cantoni, D. K. Christen, A. Goyal, L. Heatherly, F. A. List, E. D. Specht, M. Varela, and S. J. Pennycook	53
Effect of the Surface and Interface on the Superconducting Properties of REBa ₂ Cu ₃ O ₇ Films Q. X. Jia, S. R. Foltyn, J. MacManus-Driscoll, P. N. Arendt, H. Wang, Y. Li, J. Y. Coulter, and M. Hawley	65

PROCESSING

Application of In-Line, Non-Destructive Electrical Metrology in the Evaluation of the Effect of Pre-Gate Clean P. Y. Hung, L. Tan, J. Barnett, R. Hillard, C. Young, and A. Diebold	73
--	----

Interface Modification for Organic Thin Film Transistors Using a Statistical Optimization Method W.-S. Hong, B. Koo, and I. Kang	82
Morphology and Electrical Properties of Electrodeposited Gold/Titania Junctions J. Tang, G. D. Stuckey, and E. W. McFarland	92
Microstructure of Interfaces Made by Epitaxial Electrodeposition F. Oba, R. Liu, E. W. Bohannon, F. Ernst, and J. A. Switzer	101
TEM Studies of Interfacial Microstructures in YBa ₂ Cu ₃ O ₇ Coated Conductors T. G. Holesinger, B. J. Gibbons, S. R. Foltyn, P. N. Arendt, V. Matias, Q. X. Jia, L. Stan, S. Kreiskott, J. Y. Coulter, R. F. DePaula, R. Freenstra, A. A. Gapud, E. D. Specht, T. Kodenkandath, W. Zhang, X. Li, D. T. Verebelyi, U. Schoop, and M. W. Rupich	111

ADVANCES IN CHARACTERIZATION

Probing the Electronic Properties of Interfaces and Defects on the Atomic Scale N. D. Browning, I. Arslan, J.-C. Idrobo, and R. F. Klie	127
Xanes/Elnes: A Powerful Tool for Interface Characterization of Electronic Materials W. Y. Ching, P. Rulis, and Y. Chen	137
Local Magnetism at Interfaces in La-Ca-Mn-O CMR Thin Films D. J. Miller, V. Vlasko-Vlasov, and U. Welp	150
Local Electrode Atom Probes for the Study of Solid-Solid Interfaces A. Gribb, T. Kelly, T. Gribb, J. Olson, R. Martens, J. Shepard, S. Wiener, T. Kunicki, R. Ulfing, D. Lenz, E. Strennen, E. Oltman, J. Bunton, and D. Strait	156
Characterization of the Silicon Dioxide – Silicon Interface with the Scanning Capacitance Microscope J. J. Kopanski, W. R. Thurber, and M. L. Chun	165

Dopant Profiling of Metal-Oxide Semiconductor (MOS) Structures with Scanning Electron Microscopy	180
W. C. Hsaio, C. P. Liu, C. L. Yang, L. C. Sun, and T. Hung	

GRAIN BOUNDARIES, TWINS, AND DOMAINS

Interfacial Defect Chemistry in Metal Oxides: Complementary Transmission Electron Microscopy and Impedance Spectroscopy Studies	187
E. C. Dickey, G. Yang, Q. Wang, and C. A. Randall	
Defect Contributions to the Anomalous Permittivity in $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ Ceramics	197
S. Aygün, X. Tan, D. Cann, and J.-P. Maria	
Complex Dynamical Behavior in Oxide Ferroelectrics by Molecular- Dynamics Simulation	206
S. R. Phillpot, M. Sepiarsky, M. G. Stachiotti, V. Gopalan, S. K. Streiffer, and R. L. Migoni	
Twins, Their Microstructure and Correlation to Critical Current Densities in Superconducting Melt-Textured Grown Y-Ba-Cu-O	215
S.-W. Chan and L. Mei	
The Different Origins of Grain-Boundary Resistance in Acceptor-Doped and Donor-Doped SrTiO_3	220
R. Meyer and R. A. DeSouza	
Bonding, Atomic and Electronic Structure of Diamond and Silicon Grain Boundaries	235
P. Keblinski	
Second-Phase Particle Incorporation and the Occurrence of a Cellular Grain Size Distribution in Polycrystalline Sheet Silicon	244
R. Zhang, G. A. Rozgonyi, J. Rand, and R. Jonczyk	
Porosity of Titania Films on Alumina	251
K. C. Jain	

INTERFACES IN SERVICE

Reliability of Thin-Film Structures for Device Technologies: Adhesion, New Material and Length Scale Challenges E. Guyer, C. Litteken, D. Maidenberg, and R. H. Dauskardt	263
Impedance Analysis of Lithium Silicate Gel/Metal Interfaces Exposed to High Electric Field M. A. Alvarez, L. C. Klein, and E. K. Akdoğan	269
Adhesion of Titania Films on Alumina K. C. Jain	278
Dielectric Degradation of $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{TiO}_3$ Thin Film Capacitors Under Wet or Dry Conditions T. Hara, H. Nishikawa, S. Konushi, F. Fukumaru, and S. Nambu	289
Si-SiO ₂ Interface Behavior in <i>n</i> -MOSFETs with Reverse Biased Voltage During High Field and Hot Electron Injection P. Srinivasan, B. Vootukuru, and D. Misra	305
Thermal Stability of Low Resistance Ohmic Contacts Between Ti and Se-Passivated <i>n</i> -Type Si(001) D. Udeshi, E. Maldonado, Y. Xu, M. Tao, and W. P. Kirk	316
Author Index	326
Subject Index	330