

TABLE OF CONTENTS

PREFACE	iii
CRYSTAL GROWTH AND DEFECT CONTROL	
The Impact of Wafer Topography Issues on the Next Generation Processes*	3
T. Fukuda, M. Watanabe, S. Kobayashi, M. Yoshise, S. Akiyama, Y. Shimizu and M. Hashimoto	
Grown-in Microdefects in Silicon as a Guide to the Properties of Point Defects *	16
V.V. Voronkov and R. Falster	
Dynamics of Point Defects and Formation of Microdefects in Czochralski Crystal Growth: Modeling, Simulation and Experiments	27
M.S. Kulkarni, V.V. Voronkov and R. Falster	
Simulation of Oxide Formation and Point Defect Dynamics in Silicon: The Role of Oxide Morphology*	49
Z. Wang and R.A. Brown	
Simulation of Silicon Cz Growth: Where We Are Now	65
O. Anttila, M. Laakso, J. Paloheimo, J. Heikonen, A. Pursula, J. Ruokolainen, V. Savolainen and T. Zwinger	
High-Speed Growth of FZ Silicon for Photovoltaics	75
A. Luedge, H. Riemann, B. Hallmann, H. Wawra, L. Jensen, T. L. Larsen and A. Nielsen	
Observation of Ring-OSF Nuclei in As-Grown CZ Silicon Crystals by Highly Selective Reactive Ion Etching	82
K. Nakashima, K. Nakamura, T. Saishoji, Y. Watanabe, Y. Mitsushima and N. Inoue	
On the Nucleation and Growth of Bulk Stacking Faults in Cz Silicon	91
J. Vanhellefont, O. De Gryse and P. Clauws	

* Invited Paper

IMPURITIES IN SILICON

Grown-in Defects in Nitrogen Doped Czochralski Silicon*	105
D. Yang and X. Yu	
Infrared Measurement of Nitrogen Concentration in Cz Si	119
A. Hashimoto, T. Matsumoto, D. Funao and N. Inoue	
Segregation of Nitrogen in Cz Silicon	127
N. Inoue	
Theoretical Analysis of Nitrogen Complexes in Cz Silicon	133
D. Funao, I. Ohkubo, N. Inoue, A. Karoui, F.S. Karoui and G.A. Rozgonyi	
Low temperature Doping of Silicon by Hydrogen Plasma Treatments*	141
R. Job, A.G. Ulyashin, Y. Ma, W.R. Fahrner, E. Simoen, J.M. Rafi, C. Claeys, F.J. Niedernostheide and H.J. Schulze	
Surface Structure of Hydrogen Annealed Silicon Wafer Using Ozonized Water and Dilute HF Cleaning	155
H. Kurita, K. Izunome, H. Nagahama, T. Ino, J. Yamabe, N. Hayamizu and N. Sakurai	
Dislocation Locking by Oxygen in Silicon: New Insights to Oxygen Diffusion at Low Temperatures*	171
S. Sendaker, A. Giannattosio, R. Falster and P.R. Wilshaw	
Chemical and Structural Characterization of Oxide Precipitates in Heavily Boron Doped Silicon by Infrared Spectroscopy and Transmission Electron Microscopy	183
O. De Gryse, P. Clauws, J. Vanhellemont, O. Lebedev, J. Van Landuyt, E. Simoen and C. Claeys	

PROCESS- AND RADIATION-INDUCED DEFECTS IN SILICON

Backside Grinding Induced Stress Measurements by Raman Spectroscopy	197
M. Watanabe, Y. Kozuki, Y. Tomitsuka, T. Nakamura and A. Inoue	

* Invited Paper	
Detection of Metal Contamination in Internally Gettered Wafers	206
M.L. Polignano, P. Bacciaglia, D. Caputo, C. Clementi, B. Padovani, F. Priolo and T.Simpson	
Analytical Approximations for the Distributions of Substitutional Transition Metal Defects in Silicon Float Zone Crystals	218
H. Lemke	
Gettering and Lifetime Engineering in Silicon Wafers*	233
S. Martinuzzi and O. Palais	
Sensitive Copper Detection in P-Type Cz Silicon Using μ -PCD	249
H. Väinölä, M. Yli-Koski, A. Haarahiltunen and J. Sinkkonen	
Topographic Change at the SiO ₂ /Si Interface with Multilayer Oxidation for Various Temperatures	258
D. Hojo, N. Tokuda and K. Yamabe	
Diode Analysis of Deep Submicron CMOS P-Well Implantation Damage	266
A. Poyai, E. Simoen, C. Claeys and R. Rooyackers	
New Method for Accurate Determination of the Electric Field Enhancement in Junctions – Theoretical Model and Applications to STI Diodes With High Fields	278
A. Czerwinski, E. Simoen, A. Poyai and C. Claeys	
	290
Defect-Reactions of Copper in Silicon	
S. Knack, J. Weber and S.K. Estreicher	
Photoluminescence Intensity Analysis in Application To Contactless Characterization of Silicon Wafers*	299
A. Buczkowski, B. Orschel, S. Kim, S. Rouvimov, B. Snegirev, M. Fletcher and F. Kirscht	
Local Electrical Field Characteristics of Cu-Contaminated SiO ₂ Thin Films	311
N. Tokuda, T. Kanda, S. Yamasaki, K. Miki and K. Yamabe	

* Invited Paper

Influence of Irradiation-Induced Defects on the Electrical Performance of Power Devices* 320
H.-J. Schulze, F.-J. Niedernostheide, M. Schmitt, U. Kellner-Werdehausen and G. Wachutka

Impact of High-Temperature Electron Irradiation on the Electrical Parameters of N-Type Cz Silicon 336
V. Neimash, A. Kraitichinskii, M. Kras'ko, V. Tischenko, V. Voitovych, E. Simoen and C. Claeys

In-Situ Observations of Point Defect Generation and Complexing During Electron Beam Irradiation of Nitrogen Doped Czochralski Silicon 347
N. Stoddard, A. Karoui, G. Duscher, A. Kvit and G. Rozgonyi

ALTERNATIVE SILICON SUBSTRATES AND STRUCTURES

Smart-cut: A Generic Layer Transfer Solution for High Volume SOI Production* 357
C. Maleville

Electrical and Structural Characterization of Silicon on Silicon Bonded Interfaces 369
P. McCann, J. McKeever, D. Nicholson, F. Ruddell, H.S. Gamble and W.A. Nevin

Epitaxial Wafers Prepared by Hydrophobic Wafer Bonding 377
M. Reiche, E. Hiller and D. Stolze

Fabrication of 3-D Structure on P-Type Silicon Using Electrochemical Etching 387
S. Izuo, F. Saitoh, H. Ohji, T. Fukami, P.J. French and K. Tsutsumi

Authors Index 397

Subject Index 399