

TABLE OF CONTENTS

PREFACE	IX
DEDICATION TO BILL GRANT	XI
AUTHOR INDEX	XIII
OVERVIEW	
G. Carter, I.V. Katardjiev, M.J. Nobes	
High-fluence ion irradiation: an overview	3
SPUTTERING	
A. Oliva	
Historical overview on the fundamentals of sputtering	31
B. Jørgensen, M.J. Pellin, C.E. Young, W.F. Calaway, E.L. Schweitzer, D.M. Gruen, J.W. Burnett, J.T. Yates	
Depth of origin of sputtered atoms	83
J.B. Almeida	
Magnetron sputtering: physics and design	87
G. Kiriakidis, S. Logothetides	
On the formation and characterization of microcrystalline Si:H prepared by RF magnetron sputtering	93
F. Rummens, P. Bertrand, Y. de Puydt	
Depth profiling of Ta ₂ O ₅ thin layer on Ta foil by ion scattering spectrometry and ion sputtering	101
P. Wurz, G. Betz, W. Husinsky, K. Mader, B. Strehl, E. Wolfrum	
Bombardment of alkali and alkali-earth halides by ions and electrons	109
J. van Zwol, A.W. Kolfschoten, J. van Laar, J. Dieleman	
Effects of Ar ⁺ angle-of-incidence on the etching of Si with Cl ₂ and low-energy Ar ⁺ ions	117
J. Benit, J-P. Bibring, F. Rocard	
Irradiation effects in ices by energetic ions	123
K. Wien, P. Koczon, M. Weber	
Ion formation by very high energetic ion impact on solids	139
SIMULATION	
W. Möller	
Computer simulation of stopping and sputtering	151
I. Chakarov, D.S. Karpuzov	
Computer simulation of ion-beam mixing of cobalt on silicon	185
Y-T. Cheng	
On the fractal nature of collision cascades	191
R. Smith, A. Osbaldestin, G. Carter, I.V. Katardjiev, M.J. Nobes	
Simple statistical models for erosion and growth	205
DEFECTS AND DISORDER	
A.M. Stoneham	
Defects and defect processes	217
A. Hallén, P. Håkansson, B.U.R. Sundqvist, E. Tillberg	
Fast-ion-induced defects in silicon studied by deep level transient spectroscopy	231

S. Kostic, D.G. Armour, G. Carter	
Low-energy (300 eV - 10 keV) Ar ⁺ and Cl ⁺ ion irradiation of (100) Si	237
C.J. McHargue, P.S. Sklad, C.W. White, G.C. Farlow, A. Perez, N. Kornilios, G. Marest	
The charge state of iron implanted into sapphire	245
IMPLANTATION AND MIXING	
U. Littmark, A. Gras-Marti	
Direct and recoil implantation, and collisional ion-beam mixing: theory (not received in time to be included)	
A. Gras-Marti, U. Littmark	
Direct and recoil implantation, and collisional ion-beam mixing: recent low-temperature experiments	257
R. Garcia-Molina, I. Abril	
Mixing by defect-assisted migration of thin markers in solids	285
W.M. Law, C.D.P. Levy, M. McDonald, P.W. Schmor	
The TRIUMF optically pumped polarized H ⁻ ion source	291
T. Taylor	
Some high-current ion sources for materials modification	295
COMPOSITIONAL AND CHEMICAL CHANGES	
R. Kelly	
Bombardment-induced compositional change with alloys, oxides, and oxysalts. I The role of the surface binding energy	305
B. Baretzky	
Investigation of preferential sputtering mechanisms by analysing the sample surface and near-surface region with AES and ISS	329
P. Mazzoldi	
High-fluence implantation in insulators. Part I: Compositional, mechanical, and optical changes	339
J-C. Dran	
High-fluence implantation in insulators. Part II: Chemical changes	357
P.L. Bonora, L. Pedrizzi	
Electrochemical and corrosion behaviour of ion and laser-beam modified metal surfaces	385
STRUCTURAL CHANGES	
W.L. Johnson	
Ion-irradiation induced phase changes in metallic systems	405
I.H. Wilson	
The topography of ion-bombarded surfaces	421
S. Cherekdjian, I.H. Wilson	
Cultured blisters	467
ELECTRONIC CHANGES	
H. Bernas	
Electronic properties of ion-implanted metals	479

MECHANICAL CHANGES

J.C. Pivin	
Tribology of implantation bilayers	509
K. Kobs, H. Dimigen, R. Leutenecker, H. Ryssel	
Adhesive and abrasive wear study of nitrogen implanted steels	535
H. Özkan	
Effect of α -recoil damage on the elastic moduli of zircon and tourmaline	541
J.C. Pivin, F. Pons, H. Bernas	
Depth-resolved investigation of structural transformations and hardness variations in implanted films on bulk samples	547
LASER PROCESSING	
R.W. Dreyfus, R. Kelly	
Laser etching as an alternative	559
A. Aydinli, M. Berti, A.V. Drigo, P.G. Merli	
Pulsed laser irradiation of heavily Ge implanted silicon	581
Subject Index	589