

Table of Contents

Preface

Chapter 1: Defects in Devices on Silicon Carbide

| | |
|--|----|
| Implementation of Large Scale Deep Learning Non-Destructive Methods for Characterizing 4H-SiC Materials R. Leonard, M. Conrad, E. Van Brunt, J. Witry and E. Balkas | 3 |
| Correlation of Extended Defects with Electrical Yield of SiC MOSFET Devices D. Baierhofer, B. Thomas, F. Staiger, B. Marchetti, C. Förster and T. Erlbacher | 11 |
| Strain-Dependent Photoluminescence Line Shifts of the TS Color Center in 4H-SiC J.A.F. Lehmeyer, A. Fuchs, T. Bornträger, M. Popp, H.B. Weber and M. Krieger | 17 |
| Minority Carrier Traps Induced by Neutron Reactions with 4H-SiC M. Belanche, M.E. Bathen, P. Kumar, C. Dorfer, C. Martinella and U. Grossner | 23 |
| Stacking Faults Originating from Star-Defects in 4H-SiC S. El Hageali, N. Mahadik, R. Stahlbush, H. Guthrey, S. Johnston, J. Soto, B. Odekirk, B. Gorman and M. Al-Jassim | 29 |
| P-Type Impurities in 4H-SiC Calculated Using Density Functional Theory N. Smith, M. Weger, G. Pobegen and A.L. Shluger | 35 |
| The Optical Properties of the Carbon Di-Vacancy-Antisite Complex in the Light of the TS Photoluminescence Center M. Schober, N. Jungwirth, T. Kobayashi, J.A.F. Lehmeyer, M. Krieger, H.B. Weber and M. Bockstedte | 43 |

Chapter 2: Synchrotron X-ray Topography in Research of Silicone Carbide-Based Devices

| | |
|--|----|
| Analysis of Strain in Ion Implanted 4H-SiC by Fringes Observed in Synchrotron X-Ray Topography Z.Y. Chen, Y.F. Liu, H.Y. Peng, Q.Y. Cheng, S.S. Hu, B. Raghathamachar, M. Dudley, R. Ghandi, S. Kennerly and P. Thieberger | 51 |
| Effective Penetration Depth Investigation for Frank Type Dislocation (Deflected TSDs/TMDs) on Grazing Incidence Synchrotron X-Ray Topographs of 4H-SiC Wafers Q.Y. Cheng, H.Y. Peng, Z.Y. Chen, S.S. Hu, Y.F. Liu, B. Raghathamachar and M. Dudley | 57 |
| Evaluation of Strain in 3C-SiC/Si Epiwafers from X-Ray Diffraction Measurements M. Zielinski, M. Bussel, H. Mank, S. Monnoye, M. Portail, A. Michon, Y. Cordier, V. Scuderi and F. La Via | 65 |
| Analysis of Basal Plane Dislocation Motion Induced by p+ Ion Implantation Using Synchrotron X-Ray Topography Z.Y. Chen, Y.F. Liu, H.Y. Peng, Q.Y. Cheng, S.S. Hu, B. Raghathamachar, M. Dudley, S.A. Mancini, S.Y. Jang and W. Sung | 71 |

Chapter 3: Research and Designing of Machines and Equipment

| | |
|---|-----|
| A Study on Coldflame Propagation Characteristics Applying Amplified Ignition Source to Overcome Landfill gas's Flame Retardant Limit K. Ryu and M. Choe | 81 |
| Thermal Effect of Bobbin Tool Friction Stir Welding on the Mechanical Behavior of High Density Polyethylene Sheets: Experimental Study A. Kaou, D. Bouha, H.M. Meddah and E.B. Ould Chikh | 93 |
| Hydrodynamic Stability Analysis for MHD Casson Fluid Flow through a Restricted Channel S.O. Adesanya, T.A. Yusuf, A.T. Adeosun and L. Rundora | 115 |

