

# Table of Contents

## Preface

<b>Charge Transport in Polycrystalline Organic Field-Effect Transistors</b> G. Horowitz	3
<b>High Quality Textured C<sub>60</sub> Thin Films on a Mica Substrate: Growth, Crystalline Structure, Electrical and Photoelectric Properties</b> E.A. Katz, D. Faiman, S. Shtutina, A. Isakina, K. Yagotintsev and K. Iakoubovskii	15
<b>Electrical Properties of Grain Boundaries in Titanate Ceramics</b> R. Hagenbeck	21
<b>Local Potential at Atomically Abrupt Oxide Grain Boundaries by Scanning Probe Microscopy</b> D.A. Bonnell and S.V. Kalinin	33
<b>Large-Area Polycrystalline p-Type Silicon Films Produced by the Hot Wire Technique</b> I. Ferreira, R. Martins, A. Cabrita, F.M. Braz Fernandes and E. Fortunato	47
<b>The Influence of the Use of Different Catalyzers in Hot-Wire CVD for the Deposition of Polycrystalline Silicon Thin Films</b> P.A.T.T. van Veenendaal, J.K. Rath, O.L.J. Gijzeman and R.E.I. Schropp	53
<b>Boron-Doped Polysilicon: Growth Kinetics and Structural Study of Low-Pressure Chemical Vapour Deposited Films in the Case of High Doping Levels</b> B. Caussat, E. Scheid, B. Legros-de Mauduit and R. Berjoan	59
<b>Quasi-Epitaxial Growth of Silicon Layers by Hydrogen Reactive Magnetron Sputtering at Temperatures as Low as 200 °C</b> Y. Leconte, R. Rizk, F. Gourbilleau, P. Voivenel, M. Lejeune and C. Goncalves	65
<b>Effects of Ion Bombardment upon Microcrystalline Silicon Growth</b> B. Kalache, R. Brenot, V. Tripathi, S. Kumar, R. Vanderhaghen and P. Roca i Cabarrocas	71
<b>Nucleation and Growth of Hydrogenated Microcrystalline Silicon Films: New Insights from Scanning Probe Microscopies</b> J. Herion and C. Ross	77
<b>Poly-Crystallized SiGe Thin Films in a Low-Temperature Process</b> T. Noguchi	83
<b>Effect of Pressure and Temperature on the Electrical Properties of LPCVD Silicon-Germanium Thin Films</b> D. Guillet, M. Sarret, H. Lhermite and O. Bonnaud	89
<b>Intra-Grain Defects - Limiting Factor for Low-Temperature Polycrystalline Silicon Films?</b> T.A. Wagner, L. Oberbeck, R.B. Bergmann and J. Werner	95
<b>Structural Effects in Ultra-Thin Iridium Silicide</b> U. Hörmann, T. Remmele, C. Schür, M. Albrecht, H.P. Strunk, H. Grünleitner and M. Schulz	101
<b>Hydrogen Diffusion through Deformed Si-Si Bonds at Grain Boundaries in Hot-Wire CVD Polycrystalline Silicon Films</b> J.K. Rath, R.E.I. Schropp and W. Beyer	109
<b>Point Defects in Carbon-Rich Polycrystalline Silicon</b> B. Pivac, I. Kovačević and V. Borjanović	115
<b>Hydrogen Penetration into Si under Wet Chemical Etching: Experiment and Simulation</b> O.V. Feklisova, E.B. Yakimov and N. Yarykin	121
<b>Comparison of Deposited Polycrystalline Films and Crystallized Silicon from a-Si:H Films</b> G. Farhi, R. Cherfi, M. Aoucher and K. Zellama	127
<b>Visible Electroluminescence from an ITO/ZnS:Mn/n-Si Device</b> T. Hirate, M. Ueda and T. Satoh	133
<b>Properties Presented by Tin Oxide Thin Films Deposited by Spray Pyrolysis</b> P. Nunes, E. Fortunato, P.M. Vilarinho and R. Martins	139
<b>Structural, Optical and Electrical Properties of Natively Textured ZnO Grown by PECVD for Thin-Film Solar Cell Applications</b> J. Löffler, R. Groenen, P.M. Sommeling, J. Lindén, M.C.M. van de Sanden and R.E.I. Schropp	145
<b>Effect of Deposition Conditions upon Gas Sensitivity of Zinc Oxide Thin Films Deposited by Spray Pyrolysis</b> P. Nunes, E. Fortunato, P.M. Vilarinho and R. Martins	151

<b>Defects in Chlorine-Doped CdTe Thin Films</b> V. Valdna, J. Hiie and A. Gavrilov	155
<b>Heterogeneous Nucleation in Excimer-Laser Melted Si Thin-Films</b> R. Ishihara and F.C. Voogt	163
<b>Excimer Laser Crystallized Poly-Si Thin-Film Transistors on a Plastic Substrate with Mobility of 250 cm<sup>2</sup>/V.s</b> D.P. Gosain, A. Machida, S. Usui and M. Arai	169
<b>Morphological Characterization of Polysilicon Films Laser-Annealed in Argon Ambient</b> Y. Helen, G. Gautier, K. Mourgues, F. Raoult, T. Mohammed-Brahim, R. Rogel, O. Bonnaud, C. Prat and D. Lemoine	175
<b>Excimer Laser Crystallization of Doped and Undoped a-Si:H for Solar Cells</b> P. Lengsfeld, S. Christiansen, M. Nerding, M. Rebien, W. Henrion, I. Sieber and N.H. Nickel	181
<b>Laser-Crystallisation of Amorphous Si Layers and Two-Dimensional Simulations of the Process Dynamics</b> M. Nerding, S. Christiansen, S. Vogler, G. Andrä, F. Falk and H.P. Strunk	187
<b>Raman Spectroscopy of Ultra-Heavily Doped Laser-Crystallized Polycrystalline Silicon Films</b> N.H. Nickel, P. Lengsfeld and I. Sieber	193
<b>Influence of Thermal Treatments on the Crystallisation of LPCVD-Deposited Si Thin Films</b> A. Bachrouri, A. Romano-Rodríguez, J.L. Alay, A. Vilà, J.R. Morante, H. Kotb, R. Rogel, Y. Helen, T. Mohammed-Brahim, M. Sarret and O. Bonnaud	199
<b>Laser Crystallisation of Silicon-Germanium Alloys</b> C. Eisele, C.E. Nebel and M. Stutzmann	205
<b>Microcrystalline Silicon - Relation between Transport and Microstructure</b> J. Kočka, H. Stuchlíková, J. Stuchlík, B. Rezek, V. Švrček, P. Fojtík, I. Pelant and A. Fejfar	213
<b>Barrier-Controlled Transport in Highly Doped Microcrystalline Silicon: Role of Interface States</b> S. Brehme, P. Kanschä, T. Weis, K. Lips and W. Fuhs	225
<b>Atomistic Simulation Study of Grain Boundaries and Dislocations in Nanoscale Semiconductors</b> K. Masuda-Jindo, M. Menon and R. Kikuchi	231
<b>Highly Crystalline Intrinsic Microcrystalline Silicon Films Using SiF<sub>4</sub>/Ar/H<sub>2</sub> Glow Discharge Plasma</b> S. Kumar, R. Brenot, B. Kalache, V. Tripathi, R. Vanderhaghen, B. Drevillon and P. Roca i Cabarrocas	237
<b>Charge Storage Effects in Si Nanocrystals Embedded in SiO<sub>2</sub> Thin Films</b> O. González-Varona, B. Garrido, A. Pérez-Rodríguez, C. Bonafos, J. Montserrat and J.R. Morante	243
<b>Photoluminescence Features of Si/SiO<sub>2</sub> Superlattices Produced by Reactive Magnetron Sputtering</b> C. Ternon, F. Gourbilleau, X. Portier, P. Voivenel, R. Madelon and R. Rizk	249
<b>Present Status and Future Prospects of Polycrystalline Thin-Film Solar Cells in Japan</b> M. Konagai	257
<b>Polysilicon Thin-Film Solar Cells: Influence of the Deposition Rate upon Enhanced Diffusion and on Cell Performance</b> G. Beaucarne, M. Caymax, I. Peytier and J. Poortmans	269
<b>Structural Properties and Growth Mechanism of CuGaSe<sub>2</sub> Thin Films for Solar Cells Grown by Two-Source CVD</b> D. Fischer, T. Dylla, A.M. Sembian, A. Jäger-Waldau and M.C. Lux-Steiner	275
<b>N-Type Pyrite Thin Films Obtained by Doping with Titanium</b> I.J. Ferrer, J.R. Ares and C.R. Sánchez	281
<b>Properties of CuInSe<sub>2</sub> Polycrystalline Thin Films Prepared by Selenization of Co-Sputtered Cu-In Alloys</b> E.P. Zaretskaya, V.F. Gremenok, V.B. Zalesski, R.W. Martin, V.A. Ivanov, I.A. Victorov, M.V. Yakushev, O.V. Ermakov and F.V. Kurdesau	287
<b>Photosensitive Properties of CuIn<sub>x</sub>Ga<sub>1-x</sub>Te<sub>2</sub>/n-InSe Structures</b> E.P. Zaretskaya, V.F. Gremenok, Y.V. Rud', V.Y. Rud', I.V. Bodnar, K. Bente, W. Schmitz, I.A. Victorov, R.N. Bekimbetov and G. Kommichau	293

<b>Grain Boundary Recombination in Thin-Film Silicon Solar Cells</b> J. Werner, K. Taretto and U. Rau	299
<b>Numerical Simulation of the Electrical Conduction in a P-N Junction Under Solar Lighting: Application to CdZnS(n<sup>+</sup>)/CdTe(p) Heterostructure</b> A. Joti, Z. Benamara, F.S. Bachir Bouiadjra and N. Bachir Bouiadjra	305
<b>Two-Dimensional Simulations of Microcrystalline Silicon Solar Cells</b> K. Taretto, U. Rau and J. Werner	311
<b>Numerical Modeling and Simulation of Output Parameters in Poly-Si Homo Junction nip (or pin) Solar Cells</b> B. Zebentout, H. Sehil, Z. Benamara, H. Dib, T. Mohammed-Brahim and O. Bonnaud	317
<b>Polycrystalline Silicon Thin-Film Transistors</b> S. Wagner, M. Wu, B.R. Min and I. Cheng	325
<b>Single-Crystalline Regions of Silicon-on-Glass for Thin-Film Transistors</b> G. Andrä, J. Bergmann, S. Christiansen, F. Falk, M. Nerding and N.D. Sinh	337
<b>Correlation between the Ageing and the Grain Size of Polysilicon Thin-Film Transistors</b> H. Toutah, B. Tala-Ighil, J.F. Llibre, T. Mohammed-Brahim, Y. Helen, G. Gautier, K. Mourgues and F. Raoult	343
<b>Analysis of Hot Carrier Effect in Low-Temperature Poly-Si Thin-Film Transistors towards High Reliability</b> T. Fuyuki and Y. Uraoka	349
<b>Low-Temperature Plasma-Processed Microcrystalline Silicon Thin Films for Large-Area Electronics</b> P. Roca i Cabarrocas, S. Kumar, V. Tripathi, P. Bulkin, R. Brenot, B. Drévilion, R. Vanderhaghen and I. French	361
<b>Electrical and Noise Characterization of Large-Grain Polycrystalline Silicon Thin-Film Transistors</b> F.V. Farmakis, D.M. Tsamados, J. Brini, G. Kamarinos and C.A. Dimitriadis	367
<b>Accumulation Mode in Polycrystalline Silicon Thin-Film Transistors</b> Y. Bourezig, H. Sehil, B. Zebentout, Z. Benamara, F. Raoult and O. Bonnaud	373
<b>Simulation of the Backward Current in Polycrystalline Silicon Thin-Film Transistors</b> M. Baudet, H. Lhermite and T. Mohammed-Brahim	379
<b>Addressing of Organic Electroluminescent Displays</b> D. Pribat and F. Plais	385
<b>Low-Pressure Chemical Vapor Deposition of Semi-Insulating Polycrystalline Silicon (SIPOS) and its Analysis: Application to Power Diode Passivation</b> E.S. Ferreira and N.I. Morimoto	391
<b>Nanocrystalline Silicon Carbide: Structure, Properties and Application to SiC/Si Heterostructure Devices</b> S. Kerdiles, R. Rizk, D. Grebille, L. Pichon and O. Bonnaud	397
<b>Mechanical Properties of Thin and Thick Polysilicon Films for Microsystem Applications</b> J.R. Morante	405
<b>Porous Silicon in Microsystems: Thermal Isolation Applications</b> S. Périchon, V. Lysenko, B. Remaki and D. Barbier	417
<b>Thin-Film Microelectromechanical Devices on Large-Area Substrates</b> V. Chu, J.P. Conde, M. Boucinha, J. Gaspar and P. Brogueira	429
<b>Manufacturing of Precise SiC Components by Nd:YAG Laser Radiation</b> E.W. Kreutz, R. Weichenhain, A. Horn and R. Poprawe	441
<b>Polycrystalline Silicon as a Material for Magnetic Sensors: Application to Hall and TFT-Hall Cells</b> F. Le Bihan, E. Carvou, R. Rogel, A.C. Salaün, B. Fortin and O. Bonnaud	447