# Table of Contents

**PREFACE**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Biosystems and Microsystems</td>
<td>1</td>
</tr>
</tbody>
</table>

*Ion Track Nanostructuring of Dielectrics - K. Hjort (Uppsala University), E. Balanzat (Centre Interdisciplinaire de Recherche Ions Lasers), C. Trautmann (GSI), M. Toulemonde (Centre Interdisciplinaire de Recherche IonsLasers), and A. Weidinger (Hahn-Meitner-Institut Berlin)*


*Silicon-Based Field-Effect Structures - From Dielectrics to Bioelectronics - M.J. Schöening (University of Applied Sciences Aachen)*

*Neurotransistors for Biomedical Nanotechnology - A.J. Menezes and V.J. Kapoor (The University of Toledo, Biomedical Nanotechnology Research Center)*

*Biosensors Based On Standard Dielectric Materials - J. Bausells (Centro Nacional de Microelectronica (IMB-CSIC)), A. Errachid (Parc Cientific de Barcelona), and N. Zine (Centro Nacional de Microelectronica (IMB-CSIC))*

*Barrier Films on Paper and Cellulose using Fluorocarbon Plasmas - S. Vaswani (Georgia Institute of Technology), J. Koskinen (Institute of Paper Science and Technology), S. Zauscher (Duke University), and D. Hess (Georgia Institute of Technology)*

Controlled Filling of Silicon Trenches with Doped Oxide for MEMS - A. Agarwal and R. N. (Institute of Microelectronics)

**II. Integrated Optics and Optical Applications**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Optical and Electronic Properties of Nanostructured Silicon - D.J. Lockwood (National Research Council)</em></td>
<td>89</td>
</tr>
</tbody>
</table>

*MOCVD-Deposited Dielectric Films for Integrated Optical and Microelectronic Circuits - J. Mueller (Department of Micro System Technology, Technical University Hamburg- Harburg)*

```none
75
87
105
```
*Optical Characterization of LPCVD SiOxNy Thin Films - M. Modreanu (National Microelectronics Research Centre (NMRC)), M. Gartner (Institute of Physical Chemistry), and N. Tomozeiu (Utrecht University)

*Material Consideration for Integrated Optics in Silica-on-Silicon Technology - L. Wosinski, M. Dainese, and H. Fernando (Royal Institute of Technology (KTH), Dept. of Microelectronics and Information Technology)

*Nanoscale characterization and local electromechanical properties of ferroelectric films for MEMS - A. Kholkin, V. Shvartsman, A. Emelyanov (Department of Ceramics and Glass Engineering, University of Aveiro), and A. Safari (Department of Ceramics and Materials Engineering, Rutgers University)

*Optical MEMS devices based on wet anisotropic etching of silicon - M. Hoffmann, D. Nüsse, and E. Voges (Universitaet Dortmund)

*Progress in the fabrication of complex optical coatings - D. Poitras (National Research Council of Canada)

*Silicon Nitride Coatings for Si Solar Cells: Control of Optical Reflection and Surface/Bulk Passivation - B. Sopori (National Renewable Energy Laboratory)

III. Materials Processing

*Temporal Pulse Shaping and Optimization in Ultrafast Laser Ablation of Materials - R. Stoian, S. Winkler, M. Hildebrand, M. Boyle, A. Thoss, A. Rosenfeld, and I.V. Hertel (Max-Born Institut für Nichtlineare Optik und Kurzzeitspektroskopie)

Development and Characterization of KOH Resistant PECVD Silicon Nitride for Microsystems Applications - F.E. Rasmussen, B. Geilman (Mikroelektronik Centret), M. Heschel (Hymite A/S.), O. Hansen, and A.M. Jorgensen (Mikroelektronik Centret)

Ferroelectric properties of Pb-excess PZT thin films prepared by Zirconium oxyacetate-based sol-gel process - K. Nakano (Interdisciplinary Graduate School of Engineering Sciences Kyushu University), G. Sakai, K. Shimanoe, and N. Yamazoe (Department of Materials Science, Faculty of Engineering Sciences Kyushu University)
IV. Progress in Electronics

*Structural and Electronic Properties of Nanocrystalline Silicon –Silicon Dioxide Superlattices - L. Tsybeskov, B. V. Kamenev (New Jersey Institute of Technology), D. J. Lockwood (NRC, Canada)

*Properties of Gallium Nitride Nanorods by Hydride Vapor Phase Epitaxy - T.W. Kang and H.-M. Kim (Dongguk University)

*New Trends in Silicon Thin Films and Applications - J.-P. Kleider (Laboratoire de Génie Électrique de Paris, SUPÉLEC), P. Roca i Cabarrocas (Laboratoire de Physique des Interfaces et des Couches Minces), and C. Guedj (Laboratoire d'Electronique de Technologie et d'Instrumentation, CEA-Grenoble)

*Novel Dielectric Thin Films for Frequency Agile Microwave Devices - M.W. Cole, W. Nothwang, C. Hubbard, E. Ngo, M. Ervin, (U.S. Army research Laboratory), and R.G. Geyer (National Institute of Standards and Technology)


Investigation of Thin Films Prepared by Chemical Vapor Deposition as Bottom Electrodes for Memory Applications - S.Y. Kang, H.J. Lim, C.S. Hwang, and H.J. Kim (Seoul National University, School of Materials Science & Engineering)

V. Low-K and High-K Dielectrics

*Characterization of Low-k to Extreme Low-k SiCOH Dielectrics - A. Grill and D.A. Neumayer (IBM)


Gas-Phase and Surface Reactions in Plasma Enhanced Chemical Etching of High-K Dielectrics - L. Sha and J. Chang (UCLA)


HfO2 Thin Films Deposited On SOI by Ion Beam Enhanced Deposition - K. Tao and Y. Yu (Institute of Microsystem and Information Technology, Chinese Academy of Science)

Influence of the 5 Å TaNx Interface Layer on Doped Metal Oxide High-k Dielectric Characterization - Y. Kuo and J. Lu (Thin Film Microelectronics Research Laboratory, Texas A&M University)

**VI. Poster Session**

Potential Fluctuations in High-k Based Dielectric MOS Devices - J.-L. Autran, D. Munteanu, and M. Houssa (L2MP - UMR CNRS 6137)

Characterization of Thermally Evaporated ZrO2 - M. Bhaskaran, P. K. Swain (Sarnoff Corporation), and D. Misra (New Jersey Institute of Technology)

Synthesis and Characterization of Zinc Titanate Doped with Magnesium - Y.S. Chang, Y.H. Chang, I.G. Chen (National Cheng Kung University), and G.J. Chen (I-Shou University)

Investigation of High Dielectric Film on the Plastic Substrate by Novel Liquid-Phase Heterojunction Deposition- C.J. Huang, W.R. Chen, P.H. Chiu, C.Z. Chen, M.S. Lin, S.L. Lee, and Z.Y. Lin (Southern Taiwan University of Technology)


**Author Index**

**Subject Index**

**Invited Paper**