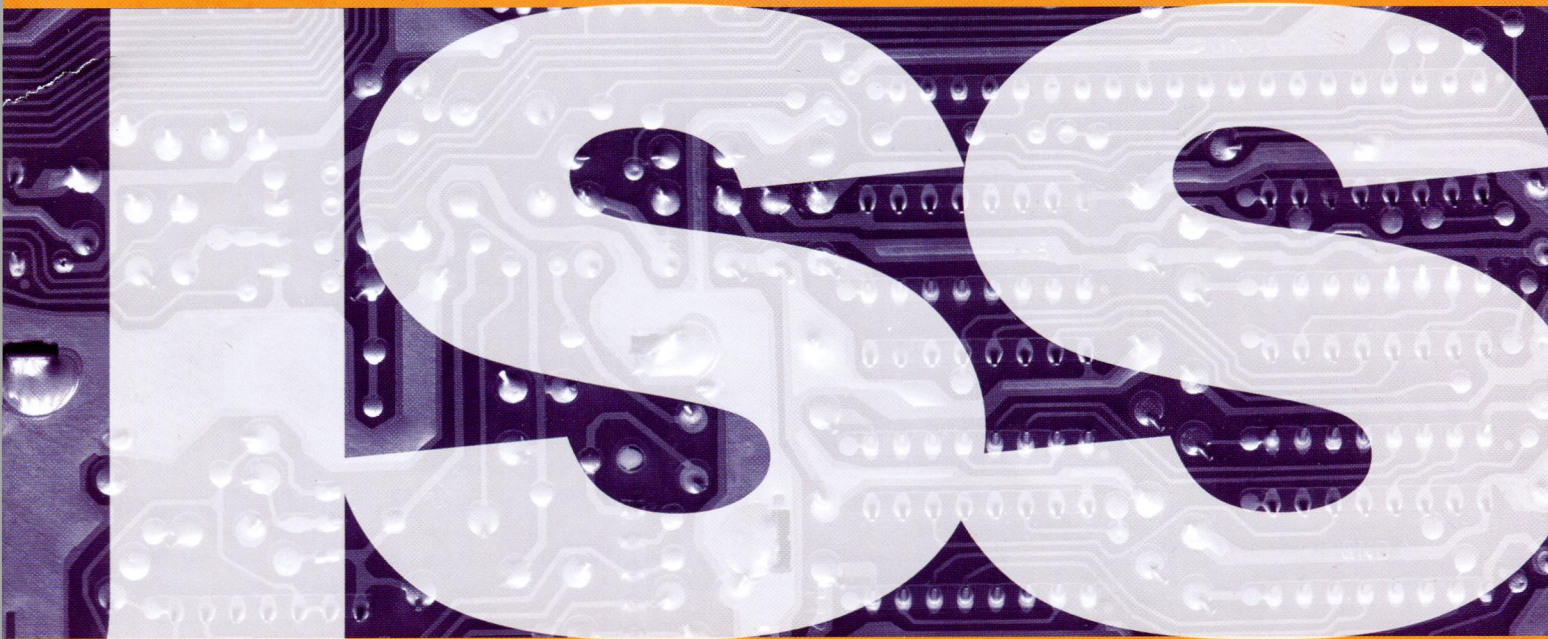


TH,  
E20/es

VOL. 3, NO. 2, 2014



**ECS JOURNAL OF SOLID STATE  
SCIENCE AND TECHNOLOGY**





## Table of Contents

---

### Dielectric Science and Materials

---

#### Characterization of Lanthanum-Aluminum Oxide Thin Films Deposited by Spray Pyrolysis

*A. N. Meza-Rocha, E. Zuleta-Alejandre,  
 J. G. Cabañas-Moreno, S. Gallardo-Hernández,  
 Z. Rivera-Álvarez, M. Aguilar-Frutis, C. Falcony* ..... N1

#### Conductivity of Alkali Carbonates, Carbonate-Based Composite Electrolytes and IT-SOFC

*H. Näge* ..... N7

#### 3D Capacitive Sensor Array for Detection of Neural Responses

*Brittany Branch, Jennifer L. Schei, Kateryna Artyushkova,  
 Gautam Gupta, Andrew M. Dattelbaum, John S. George,  
 Dimiter N. Petsev* ..... N15

---

### Electronic Materials and Processing

---

#### Phosphorus Profile Control in Ge by Si Delta Layers

*Y. Yamamoto, P. Zaumseil, J. Murota, B. Tillack* ..... P1

#### Chemical Mechanical Polishing of Selective Epitaxial Grown Germanium on Silicon

*Yan Cai, Wei Yu, Lionel C. Kimerling, Jurgen Michel* ..... P5

#### Low Temperature Measurement of the Electrical Conductivity in Amorphous InGaZnO Thin Films

*Hasung Sim, Seongil Choi, Je-Geun Park, Jaewon Song,  
 Seungwu Han, Cheol Seong Hwang, Deok-Yong Cho* ..... P10

#### Silicon Surface Passivation by Anodic Oxidation Annealed at 400°C

*Nicholas E. Grant, Keith R. McIntosh* ..... P13

#### InP-Si BiCMOS Heterointegration Using a Substrate Transfer Process

*M. Lisker, A. Trusch, A. Krüger, M. Fraschke, P. Kulse,  
 Y. Borokhovich, B. Tillack, I. Ostermay, T. Krämer,  
 A. Thies, O. Krüger, F.-J. Schmückle, V. Krozer,  
 W. Heinrich* ..... P17

---

### Electronic and Photonic Devices, and Systems

---

#### Immobilization of Silver Nanoparticles by Peptide Nucleic Acids in Surface Plasmon Enhanced Dye-Sensitized Solar Cells

*N. Loew, S. Ikenouchi, M. Ihara* ..... Q1

#### Metal Removal and Defect Passivation Performed on Si Wafers for Solar Cell Use by HCN Treatments

*Katsuya Kimura, Masao Takahashi, Hikaru Kobayashi* ..... Q11

#### Highly Reliable Polysilsesquioxane Passivation Layer for *a*-InGaZnO Thin-Film Transistors

*Juan Paolo Bermundo, Yasuaki Ishikawa, Haruka Yamazaki,  
 Toshiaki Nonaka, Yukiharu Uraoka* ..... Q16

#### The Influence of Fluorinated Silicon Nitride Gate Insulator on Positive Bias Stability toward Highly Reliable Amorphous InGaZnO Thin-Film Transistors

*Haruka Yamazaki, Yasuaki Ishikawa, Mami Fujii,  
 Yoshihiro Ueoka, Masaki Fujiwara, Eiji Takahashi,  
 Yasunori Andoh, Naoyuki Maejima, Hirosuke Matsui,  
 Fumihiko Matsui, Hiroshi Daimon, Yukiharu Uraoka* ..... Q20

#### Effect of Mg Doping on the Electrical Characteristics of High Performance IGZO Thin Film Transistors

*Hung-Chi Wu, Tung-Sheng Liu, Chao-Hsin Chien* ..... Q24

---

### Luminescence and Display Materials, Devices, and Processing

---

#### Ab Initio Calculations of the Structural and Electronic Properties of Ca<sub>2</sub>La<sub>3</sub>Sb<sub>3</sub>O<sub>14</sub> Weberite at Ambient and Elevated Hydrostatic Pressure

*Mikhail G. Brik, Alok M. Srivastava, Marco Bettinelli* ..... R1

#### The Formation of Smooth Facets on Wet-Etched Patterned Sapphire Substrate

*Yu-Chung Chen, Bo-Wen Lin, Wen-Ching Hsu,  
 YewChung Sermon Wu* ..... R5

**Ce<sup>3+</sup>, Tb<sup>3+</sup>, Eu<sup>3+</sup>, Mn<sup>2+</sup>-doped and Codoped  
NaY<sub>9</sub>(SiO<sub>4</sub>)<sub>6</sub>O<sub>2</sub> Phosphors: Luminescence, Energy  
Transfer, Tunable Color Properties**

*Wenzhen Lv, Yongchao Jia, Wei Lü, Qi Zhao,  
Mengmeng Jiao, Baiqi Shao, Hongpeng You . . . . . R9*

**Effects of Ce Concentration and Temperature  
on Photoluminescence Intensity in KCl:Ce<sup>3+</sup>  
Blue Phosphor**

*Yuki Tosaka, Sadao Adachi . . . . . R14*