

CONTENTS

Symposium of Domain Structure Related Ferroic Properties and New Functional Materials

Preface	1
Ferroelastic Phase Transition of Cs₃H(SeO₄)₂	3
Eisuke Magome and Masaru Komukae	
X-ray Topography on Piezoelectric La₃Ga₅SiO₁₄ Single Crystal	7
Yasuhiro Yoneda, Yuka Okajima, Hiroaki Takeda, Tadashi Shiosaki and Jun'ichiro Mizuki	
Growth and Characterization of Langasite-type Single Crystals Substituted with Aluminum to the Solubility Limit	11
Hiroaki Takeda, Satoshi Tanaka, Tadashi Nishida, Kiyoshi Uchiyama and Tadashi Shiosaki	
Electronic Structure in the Valence Band of C-axis Oriented Sr_{0.5}Ba_{0.5}Nb₂O₆ Thin Film on La_{0.05}Sr_{0.95}TiO₃ Substrate	15
Yoshiki Ebina, Tohru Higuchi, Takeshi Hattori and Takeyo Tsukamoto	
Effect of Sr Substitution for Ba₂NaNb₅O₁₅ Thin Films Prepared by Pulsed Laser Deposition	19
Taro Yamasaki, Tohru Higuchi, Takeshi Hattori and Takeyo Tsukamoto	
Electronic Structure in the Valence Band of (Pb,La)(Zr,Ti)O₃ Thin Films Probed by Soft-X-Ray Emission Spectroscopy	23
Tohru Higuchi, Takeyo Tsukamoto, Takeshi Hattori, Yoshihisa Honda, Shintaro Yokoyama and Hiroshi Funakubo	
Investigation of Domain Distribution in Patterned PZT Thin Films Using Raman Spectroscopy	27
Ken Nishida, Minoru Osada, Shintaro Yokoyama, Kenji Takahashi, Hiroshi Funakubo and Takashi Katoda	
Evaluation of Ferroelectric Domain Size by Impedance Response in Pb[(Zn_{1/3}Nb_{2/3})_{0.91}Ti_{0.09}]O₃ Single Crystal	31
Toshio Ogawa	
Simulation of Field-Dependent Switching Kinetics and its Influence on Ferroelectric Hysteresis Loops	35
Dan Ricinschi and Masanori Okuyama	
Magnetic Ferroelectrics Bi, Pb-3d Transition Metal Perovskites	41
Masaki Azuma, Seiji Niitaka, Alexei Belik, Shintaro Ishiwata, Takashi Saito, Kazuhide Takata, Ikuya Yamada, Yuichi Shimakawa and Mikio Takano	
Crystal Growth and Electric-field-induced Strain in Bi_{0.5}Na_{0.5}TiO₃ Single Crystals	47
Sho Yoshimura, Yuji Noguchi and Masaru Miyayama	
Polarization and Piezoelectric Properties of La-Substituted Bi_{0.5}Na_{0.5}TiO₃ Ceramics	51
Yoishi Kizaki, Yuji Noguchi and Masaru Miyayama	
Nanoscale Characterization of Ferroelectric Domain Structures Using Scanning Near-field Optical Microscopy	55
Minoru Osada, Yuji Noguchi, Shingo Katayama and Masaru Miyayama	
Domain Observations of As-grown and Annealed Bismuth Titanate-Based Crystals	61
Shinichi Katayama, Yuji Noguchi and Masaru Miyayama	
Ferroelectricity and Electronic State of Bi₄Ti_{3-x}Hf_xO₁₂ Ceramics	65
Tohru Higuchi, Shigetaka Watanabe, Yuki Ohno, Kyohei Natsume, Takeshi Hattori and Takeyo Tsukamoto	
High Mechanical and Electrical Quality Factors of Nd and V co-substituted Bi₄Ti₃O₁₂ Ceramics	69
Yuji Hiruma, Satoru Matsuzawa, Hajime Nagata and Tadashi Takenaka	
Effect of Oxygen Radical Irradiation of Bi₄Ti₃O₁₂ Thin Films by Two-Dimensional RF Magnetron Sputtering	73
Naoko Inada, Tohru Higuchi, Hiroaki Masaya, Hironobu Ogawa, Mayumi Iwasa, Takeshi Hattori and Takeyo Tsukamoto	
Ferroelectric and Structural Properties of Bi₄Ti₃O₁₂ Thin Films with TiO₂ Layer Prepared on Ir/Ti/SiO₂/Si Substrates	77
Masanori Saitoh, Tohru Higuchi, Mitsuru Konisi, Takeshi Hattori and Takeyo Tsukamoto	

Ferroelectric Properties of Bi₄Ti₃O₁₂ Thin Films with TiO₂ Anatase Layer on Pt/Ti/SiO₂/Si Substrates Prepared by MOCVD	81
Mitsuru Konishi, Tohru Higuchi, Yuji Hachisu, Makoto Nakamura, Takeshi Hattori and Takeyo Tsukamoto	
Chemical Processing and Characterization of Bi₄Ti₃O₁₂-BiFeO₃ Thin Films	85
Yuko Komami, Tetsuo Shimura, Wataru Sakamoto and Toshinobu Yogo	
Preparation and Properties of Ba(Zr,Ti)O₃ Thin Films by Chemical Solution Deposition	89
Ken-ichi Mimura, Takafumi Naka, Tetsuo Shimura, Wataru Sakamoto and Toshinobu Yogo	
Enhanced Piezoelectric Property of Barium Titanate Single Crystals by Domain Wall Engineering using Patterning Electrodes	93
Satoshi Wada, Koichi Yako, Tomomitsu Muraishi, Keisuke Yokoh, Song-Min Nam, Hirofumi Kakemoto and Takaaki Tsurumi	
Soft Mode Dynamics in ¹⁸O-Exchanged SrTiO₃ as Inhomogeneous System	97
Hiroki Taniguchi, Mitsuru Itoh, Masaki Takesada and Toshiro Yagi	
Phase Transformation of Barium Titanate Confirmed by Raman Spectroscopy and Powder X-ray Diffraction	101
Hiroyuki Ikawa, Tooru Nakai, Seiichi Higuchi, Kenichi Saitoh and Minoru Takemoto	
Dielectric Property Change from Perovskite Type Oxide Films with Multi-Layered Structures	105
Takatoshi Matsuo, Takashi Teranishi, Takakiyo Harigai, Song-Min Nam, Hirofumi Kakemoto, Satoshi Wada and Takaaki Tsurumi	
Ring Resonator Method for Evaluation of Dielectric Property of Thin Layers in Microwave Region	109
Takashi Teranishi, Kentaro Tajima, Takakiyo Harigai, Song-Min Nam, Hirofumi Kakemoto, Satoshi Wada and Takaaki Tsurumi	
Double Beam Laser Doppler Interferometer and FEM Analysis to Determine Piezoelectric Constants of Thick Film Actuators	113
Takahiro Hagimoto, Song-Min Nam, Maxim Lebedev, Hirofumi Kakemoto, Satoshi Wada, Jun Akedo and Takaaki Tsurumi	
 <i>Symposium of Technology of Dielectric Thin Films for Future Electronic Devices</i> – <i>Control of the Interface and the Nano-structure</i> –	
Preface	117
Analyses on the Carrier Mobilities of MISFETs with Silicate Gate Dielectrics	119
A. Nishiyama, R. Iijima, T. Yamaguchi, M. Koyama and M. Takayanagi	
Photoemission Study of Ultrathin HfSiON/Si(100) Systems	125
A. Ohta, H. Nakagawa, H. Murakami, S. Higashi, S. Miyazaki, S. Inumiya and Y. Nara	
An Unfavorable Effect of Nitrogen Incorporation on Reduction in the Oxygen Vacancy Formation Energy in Hf-based High-<i>k</i> Gate Oxides	129
N. Umezawa, K. Shiraishi, Y. Akasaka, S. Inumiya, A. Uedono, S. Miyazaki, T. Chikyow, T. Ohno, Y. Nara and K. Yamada	
Fabrication of Multiply-Stacked Si Quantum Dots for Floating Gate MOS Devices	133
K. Makihara, M. Ikeda, T. Nagai, H. Murakami, S. Higashi and S. Miyazaki	
Multistep Electron Charging to and Discharging from Silicon-Quantum-Dots Floating Gate in nMOSFETs	137
T. Nagai, M. Ikeda, Y. Shimizu, S. Higashi and S. Miyazaki	
Statistical Evaluation of Very Low Gate Leakage Current for Bit Error Evaluation in Flash Memory	141
Tomoyuki Suwa, Shigetoshi Sugawa, Hiroto Takahashi, Akinobu Teramoto and Tadahiro Ohmi	
Characterization of FUSI-PtSi Formed on Ultrathin HfO₂/Si(100) by Photoelectron Spectroscopy	145
Y. Munetaka, F. Takeno, A. Ohta, H. Murakami, S. Higashi, S. Miyazaki, M. Kadoshima and T. Nabatame	
Influence of Thermal Annealing on Defect States and Chemical Structures in Ultrathin Al₂O₃/SiN_x/poly-Si	149
M Taira, A.Ohta, H. Nakagawa, S. Miyazaki, K. Komeda, M. Horikawa and K. Koyama	

Nitridation of Ge(100) Surfaces by Vacuum-ultra violet (VUV) Irradiation in NH₃ Ambience	153
H. Nakagawa, A. Ohta, M. Taira, H. Abe, H. Murakami, S. Higashi and S. Miyazaki	
Impact of Nitrogen Incorporation into Yttrium Oxide on Chemical Bonding Features and Electrical Properties	157
Hiroyuki Abe, Hiroshi Nakagawa, Masahiro Taira, Akio Ohta, Seiichiro Higashi and Seiichi Miyazaki	
The Nitridation Process of Silicon with Atmospheric Pressure Plasma	161
Mari Nakae, Ryoma Hayakawa, Takeshi Yoshimura, Tsuyoshi Uehara and Norifumi Fujimura	
Low Temperature Deposition of Silicon Nano-dots by PECVD	165
A. Tomyo, E. Takahashi, T. Hayashi, K. Ogata, Y. Uraoka and H. Harima	
Electrode Dependence of Thermally Stimulated Current in PZT Thin Film Capacitors	169
Takashi Nishida, Yoshinari Nakayama, Takashi Takeda, Kiyoshi Uchiyama and Tadashi Shiosaki	
Fabrication of (Ba,Sr)TiO₃ Epitaxial Thin Films and Characterization of Microwave Waveguiding Structures	173
Gun Bhakdisongkham, Youji Yamashita, Takashi Nishida, Kiyoshi Uchiyama and Tadashi Shiosaki	
Deposition Control of La in the Preparation of (Bi,La)₄Ti₃O₁₂ Films by Liquid-delivery MOCVD	177
Yoshihiro Sekita, Yuzo Tasaki, Tsutomu Tanaka and Shuji Yoshizawa	
Low Temperature Crystallization of (Pb,Ba)TiO₃ Ferroelectric Thin Films by MOCVD Method and Hydrothermal Treatment at 240	181
Takuji Naoyama, Minoru Noda, Masanori Okuyama, Hironori Fujisawa and Masaru Shimizu	
Fabrication of YMnO₃ Epitaxial Thin Films and the Magnetic-Ferroelectric Correlation Phenomena	185
K. Maeda, N. Shigemitsu, T. Yoshimura and N. Fujimura	
Mn Doping Effects on Dielectric Properties of ZnO Epitaxial Films	189
T. Oshio, A. Ashida, T. Yoshimura and N. Fujimura	
Electric and Magnetic Properties of Ba(Co,Mn)O_{3.6} Epitaxial Thin Films	193
T. Inoue, T. Matsui, H. Tsuda, T. Yoshimura, N. Fujimura and K. Morii	
Fabrication of SBT-based Ferroelectric Thin Films for Low Voltage Operation of Ferroelectric-gate FET	197
Hirokazu Saiki, Syahhibul Azwar and Eisuke Tokumitsu	
Variation in Characteristics of Organic Electroluminescent Devices Caused by Changes in the Film Thickness of the Organic Layer	201
Yusuke Shima, Jin Li and Shigetaka Fujita	
 <i>Symposium of Novel Functions of Nano-Interfaces: Understanding and Design of Their Chemical, Mechanical and Electronic Properties</i>	
Preface	205
Theoretical Study of Lu Segregation in Σ13 Al₂O₃ Grain Boundary	207
Kaoru Nakamura, Naoya Shibata, Katsuyuki Matsunaga, Takahisa Yamamoto and Yuichi Ikuhara	
Bioadhesion of Polymer/Ceramics Nanocomposite	211
Kazuhiko Ishihara and Tomohiro Konno	
Electrical Properties of Carbon Nanotube Sheets with Ni and Mg Electrode Metals	215
Hideyuki Maki, Testuya Sato and Koji Ishibashi	
Electronic Structure Calculations of Organic-Metal Interfaces: A First-Principles Study	219
Rachid Belkada, Yoshiyuki Shirakawa, Masanori Kohyama, Jusuke Hidaka and Shingo Tanaka	
High Sensitive Gasochromic Hydrogen Sensors using Tungsten Oxide Thin Films	223
Katsuyoshi Takano, Shunya Yamamoto, Masahito Yoshikawa, Aichi Inouye and Akira Sugiyama	
Gasochromic Property of Oriented Tungsten Oxide Thin Films	227
Aichi Inouye, Katsuyoshi Takano, Shunya Yamamoto, Masahito Yoshikawa and Shinji Nagata	