

Table of Contents

Preface and Committees

I. Micro- and Nano-Science and Technologies

Long Range Ordering of 5-nm-Sized Dot Arrays with a Pitch of <10 nm along EB-Drawn Guide Lines Using PS-PDMS Self-Assembly H. Zhang, M. Huda, J. Liu, Y.L. Zhang, T. Jin, S. Hosaka and Y. Yin	3
Observation of Magnetic Nanodot Arrays Using Near-Field Polarization Microscope R. Takahashi, T. Jin, Z. bin Mohamad, H. Zhang, M. Huda, V.L.M. Nhat, Y. Yin and S. Hosaka	9
Fabrication of Microstructures Embedded in SC-CVD Diamond with a Focused Proton Microbeam W. Kada, Y. Kambayashi, K. Miura, R. Saruya, A. Kubota, T. Satoh, M. Koka, T. Kamiya and O. Hanaizumi	15
Study of Allylsilyl and Hydrosilyl Groups as Anchor Moieties of Sensitizing Dyes for Dye-Sensitized Solar Cells K. Kakiage, M. Yamamura, T. Kyômen, M. Unno and M. Hanaya	21

II. Photonic and Magnetic Materials and Devices

Enhancement of Optical Transmittance of Polymer-Dispersed Liquid Crystal Cells I. Syazwani, M. Haruyama, H. Hachisuka, G. Sha, W. Kada, T. Sasaki, K. Miura and O. Hanaizumi	29
Electroluminescence of a Multilayer in which Thin Films of $\text{NaNbO}_3\text{:Pr}$ Phosphor and $\text{SnO}_2\text{:Sb}$ Transparent Conductor Are Alternately Stacked T. Kyômen, S. Hasuko, M. Hanaya and H. Takashima	33
Magnetic Compton and Bragg Scattering Studies of Disordered $\text{Pd}_{0.80}\text{Co}_{0.20}$ Alloy M. Ito, K. Suzuki, H. Sakurai, R. Yamaki, A. Sato, M. Ito and Y. Sakurai	39

III. Electronics, Microelectronics and Communication

Single-Inductor Dual-Output DC-DC Converter Design with Exclusive Control M.R. Li, Y. Kobori, F. Zhao, Q.L. Zhu, Z. Nosker, S. Wu, S.N. Mohyar, H. Kobayashi and N. Takai	47
Continuous-Time Delta-Sigma Controller for DC-DC Converter F. Zhao, H. Gao, L. Xing, Y. Kobori, S. Wu, H. Kobayashi, S. Miwa, A. Motozawa, Z. Nosker and N. Takai	53
A Simple Analog Feed-Forward Controller Design for DC-DC Buck Converter S. Wu, Y. Kobori and H. Kobayashi	61
Design of Hysteresis Controlled Single-Inductor Multi-Output DC-DC Converter S. Tanaka, T. Nagashima, Y. Kobori, K. Kaneya, T. Sakai, B.S. Kumar, N. Takai and H. Kobayashi	69
Delta-Sigma Digital-to-Time Converter for Band-Select Spread Spectrum Clock R. Khatami, H. Kobayashi and Y. Kobori	79
Noise-Shaping Cyclic ADC Architecture Y. Arai, Y. Liu, H. Kobayashi, T. Matsuura and O. Kobayashi	93
SFDR Improvement Algorithms for Current-Steering DACs S.N. Mohyar, M. Murakami, A. Motozawa, H. Kobayashi, O. Kobayashi and T. Matsuura	101
A Power-Efficient Noise Canceling Technique Using Signal-Suppression Feed-Forward for Wideband LNAs D. Oki, S. Kawauchi, C.B. Li, M. Kamiyama, S. Banba, T. Dan, N. Takahashi and H. Kobayashi	109
A New Self-Heat Modeling Approach for LDMOS Devices H. Aoki and H. Kobayashi	117

Digital Auto-Tuning for Center Frequency and Q-Factor of Gm-C Band-Pass Filter G.L. Jin, H. Chen, C. Gao, Y.P. Zhang, M.R. Li, H. Kobayashi, S. Wu, N. Takai, K. Niitsu and K. Hadidi	123
Automatic Synthesis of Comparator Circuit Using Genetic Algorithm and SPICE Optimizing Function T. Negishi, N. Arai, N. Takai, M. Kato, H. Seki and H. Kobayashi	131
Comparison of NRZ and 4-PAM Coding for High-Speed VLSI Data Transmission Y. Yuminaka and Y. Takada	141
Phase Noise Measurement and Testing with Delta-Sigma TDC Y. Osawa, D. Hirabayashi, N. Harigai, H. Kobayashi, O. Kobayashi, M. Tsuji, S. Umeda, R. Shiota, N. Dobashi, M. Watanabe, T. Matsuura, K. Niitsu, I. Shimizu, N. Takai and T.J. Yamaguchi	149
Frequency Bandwidth Adjustment by Precision Post-Processing for a 0.78–0.95 THz Band SIS Mixer A. Miyachi, T. Kojima, Y. Fujii, M. Takeda, Y. Uzawa, M. Kroug and T. Noguchi	157

IV. Novel Methods and Devices for Measurements

Frictional Characteristics Measurement of a Ceramic Aerostatic Linear Bearing K. Kitabata, H. Iwashita, A. Takita, M. Djamal, N. Pornsuwancharoen and Y. Fujii	167
Impact Response Measurement of Contact Lenses K. Watanabe, N. Miyashita, D.H. Bin, K. Irida, A. Takita, T. Yamaguchi, E. Carcasona, S. Mitatha and Y. Fujii	173
Surface Measurement by Digital Holography with New Unwrapping Method Y. Takahashi and F. Sahara	179
Prototype of Atomic Force Microscope with High Resolution Optical Microscope for Observing Magnetic Nanodot Arrays T. Jin, R. Takahashi, H. Zhang, Y. Yin and S. Hosaka	185

V. Medical Science and Health Security

Computational Analysis of Heavy Ion-DNA Interaction Using Molecular Dynamics Method A. Nagao, Y. Yin and S. Hosaka	193
Simulation Study on Indoor Pollen Removal with Variable Exhaust Angle of an Air Purifier A. Hashimoto and T. Takahashi	199
Feasibility of Ceiling-Mounted Assist Device of Air-Purifier for Removal of Airborne Allergic Pollen Grains T. Takahashi, A. Hashimoto, S. Tokoi and M. Goto	205