

CONTENTS**Regular Papers**

- Effects of Alkali Pretreatment on Enzymatic Saccharification of Beet Pulp** 509
 Yoji Kato and Mikihiko Kobayashi

- Effects of Particle Diameter and Compacted Mass on Microwave Heating of Copper Powder** 515
 Hidekazu Sueyoshi and Takuya Honbo

Symposium of Buried Interface Science with X-Rays and Neutrons
-Advanced analysis and the new opportunities in nano-science and nano-technology

- Preface** 521

- Significance of Frequency Analysis in X-ray Reflectivity: Towards analysis which does not depend too much on models** 523
 Kenji Sakurai, Mari Mizusawa and Masashi Ishii

- Application of GISAXS to the Microstructural Evaluation of Semiconductor and Metallic Materials** 529
 H. Okuda, K. Kuno, M. Ohtaka, S. Ochiai, K. Ito, S. Sasaki, M. Tabuchi and Y. Takeda

- Grazing Incidence Small Angle X-ray Scattering Study for Determining Structure and Composition of Multi-Stack Ge Nanowires on Si(113)** 535
 Kazuhiko Omote, Hiroo Omi and Tomoaki Kawamura

- Slow Neutron Optics** 541
 Hirohiko M. Shimizu

- Buried Heterostructure of Nitride Semiconductors Revealed by Laboratory Level X-ray CTR Scattering** 547
 Y. Takeda, Y. Maeda, T. Mizuno and M. Tabuchi

- Recent Progress in Solving the Phase Problem in Surface and Interface Crystallography** 551
 Wataru Yashiro

- Structural Study on Interface Between Thick Gallium Layer and SiC Substrate by X-Ray Reflectivity under Transmission Geometry** 557
 Takehiro Noda, Masanori Tanaka, Amane Kitahara, Tadaaki Kaneko, Osami Sakata and Isao Takahashi

- Multilayer Structure Analysis Using Angular Fluorescence Intensity Variation under Grazing Incidence Condition** 561
 Kouichi Hayashi, Hisataka Takenaka, Naohisa Happo and Shinya Hosokawa

- Effect of Alcohols on Glycosphingolipid Aggregates** 567
 Teruaki Onai and Mitsuhiro Hirai

- Characterization of the Interface Structure of Hydrophilic and Hydrophobic Polymer Brushes by Neutron Beam and Synchrotron Radiation** 573
 H. Yamaguchi, Y. Terayama, K. Honda, M. Kobayashi, O. Sakata, M. Takata, S. Sasaki, N. Torikai, M. Hino, K. Ishihara and A. Takahara

- The High-Tc Superconductive Gap Energy Evaluated by a Free Electron Laser Internal Photoemission** 579
 K. Nishi, K. Awazu and H. Horie

- Nucleation, Expansion and Compression of Y_2O_3 Nano-Crystals: Crystallogenesis in Annealing Process of Metalorganic Decomposition Method** 583
 Masashi Ishii, Aiko Nakao and Kenji Sakurai

- Structure of Spatio-Temporal Fluctuations in Shape Memory Alloy $\text{Au}_{50.5}\text{Cd}_{49.5}$ Revealed by X-Ray Diffraction** 587
 Michinori Yoshikawa, Genki Kikuma, Takuya Ohba, Hikaru Terauchi and Isao Takahashi

- X-ray CTR Scattering Measurements Using Conventional X-Ray Source to Study Semiconductor Hetero-Interfaces** 591
 Y. Maeda, T. Mizuno, A. Mori, M. Tabuchi, Y. Takeda

- Shape and Size Analysis of InAs Nanodots Capped by Amorphous As by GI-SAXS** 595
 K. Kuno, M. Ohtaka, S. Nakano, H. Okuda, S. Ochiai, Y. Noritake, Y. Suzuki, Y. Takeda and M. Tabuchi

Depth Distribution of Ge Fraction in Very-Thin-SGOI Layers Using Total-External-Reflection X-ray Diffraction	599
T. Kawamura, H. Omi, M. Mizumaki and S. Kimura	
SiO_x/Si(100) Interfacial Lattice Strain Studied by Extremely Asymmetric X-ray Diffraction	603
Hironori Yoshida, Koichi Akimoto, Yuki Ito, Takashi Emoto, Naoya Yamamoto, Yoshio Oshita and Atsushi Ogura	
Similarity between Strain Fields Induced by the Xe/NH₃ Plasma Nitridation and the Kr/O₂ Plasma Oxidation Revealed by a Multi-Wave X-ray Diffraction Phenomenon	607
Wataru Yashiro, Yoshitaka Yoda, Yuichiro Matsushita, Takashi Aratani, Akinobu Teramoto, Takeo Hattori and Kazushi Miki	
Buried H Monolayer at Hetero-Interface between Highly Mismatched Sr Films and Si Substrates	611
Tatsuya Yamazaki, Hidehito Asaoka, Masayasu Takeda, Dai Yamazaki, Tomitsugu Taguchi, Naoya Torikai, Yasutake Toyoshima and Shin-ichi Shamoto	
Formation of Preferred Orientation in Bi_{4-x}La_xTi₃O₁₂ Thin-Films on Si(100) During Crystallization	615
Atsushi Kohno and Takayuki Tajiri	
Transmission X-ray Diffraction from Bismuth Lines Embedded in Silicon	619
Hiroo Tajiri, Wataru Yashiro, Osami Sakata, Kunihiro Sakamoto and Kazushi Miki	
X-ray Diffraction from Buried Bi Atomic Wire Formed on Si(001) - Near the Bi L_{III} Absorption Edge	623
Wataru Yashiro, Osami Sakata, Kunihiro Sakamoto and Kazushi Miki	
X-ray Reciprocal-Lattice Space Imaging Method for Quick Analysis of Buried Crystalline Nanostructure - a Diffraction Method Fixed at an Angular Position	625
Osami Sakata, Wataru Yashiro, Kunihiro Sakamoto and Kazushi Miki	
Structural Evaluation of an Iron Oxalate Complex Layer Grown on an Ultra-smooth Sapphire (0001) Surface by a Wet Method	629
R. Haruki, O. Sakata, T. Yamada, K. Kanaizuka, R. Makiura, Y. Akita, M. Yoshimoto and H. Kitagawa	
The Surface Structure of Reconstructed Pt(211)-(2 x 1) Determined Using Surface X-Ray Diffraction	633
Masashi Nakamura, Nagahiro Hoshi, Kazushi Sumitani and Osami Sakata	
Instability of Adsorbed Films of 1-Dodecanol and its Mixture with Sodium Dodecyl Sulfate at the Air/Water Interface	637
Chika Akabane, Ken-ichi Iimura, Shinji Yamada, Tomoya Uruga, Hajime Tanida, Hidenori Toyokawa, Yasuko Terada and Gerald Brezesinski	
New Polymorphisms in the Surface Region of Cocoa Butter Studied by X-ray Diffraction	641
Y. Hayashi, Y. Uozaki, H. Terauchi and I. Takahashi	
Influence of Surface Roughness in Depth Profile Analysis of the Strain Distribution in Surface Layer Using X-Ray Diffraction at Small Glancing Angles of Incidence	645
Yoshikazu Fujii	
Performance of X-ray Reflectivity and Grazing-Incidence Small-Angle X-ray Scattering Measurement at Beamline BL15 of the Saga Light Source	649
Kazushi Sumitani, Kotaro Ishiji, Toshihiro Okajima, Yasuharu Hirai, Kazuhiro Ueda and Akio Yoneyama	
 Symposium of Frontier of Nano-Materials Based on Advanced Plasma Technologies	
Preface	653
Study on the behavior of the Plasma Plume and Film Quality using Pulsed Laser Deposition with Tungsten Target	655
Hiroharu Kawasaki, Tamiko Ohshima, Yoshihito Yagyu and Yoshiaki Suda	
Room Temperature Photoluminescence of the Freestanding Silicon Nanocrystals	659
Vladimir Švrček, Yoshiki Shimizu, Takeshi Sasaki and Naoto Koshizaki	
Synthesis and Electrical Transport Properties of the C₅₉N Encapsulated Single-Walled Carbon Nanotubes	665
Yongfeng Li, Toshiro Kaneko, Shohei Nishigaki and Rikizo Hatakeyama	

Low-Cost Synthesis of Carbon Nanohorns by Nitrogen-Injected Arc-in-Water System: Use of Low Purity Electrode for High Yield Production	669
Norikai Sano, Yoshinaga Yasumura, Yuu Kimura, Atsuhi Toyoda and Katsumi Hirano	
Biomolecule Encapsulated Carbon Nanotubes Using Nano Processing in Electrolyte Plasmas	673
Toshiro Kaneko and Rikizo Hatakeyama	
Organic Materials Surface Hydrophilic Control Using Atmospheric Pressure Plasma Jets	679
Seiji Mukaigawa, Hiroshi Ito, Kota Nawa, Noriyuki Kita, Koichi Takaki and Tamiya Fujiwara	
Surface Modification of Fluorocarbon Polymer Film by High Density Surface Wave Plasma	683
Kyosuke Ishikawa, Tatsuo Ishijima, Kensuke Sasai, Hirotaka Toyoda and Hideo Sugai	
Control of Size and Composition of Sn Based Nanoparticles Prepared by Ar-H₂ Arc	687
Manabu Tanaka, Teisuke Hiyama and Takayuki Watanabe	
Liquid Waste Decomposition by DC Water Plasmas at Atmospheric Pressure	691
Hiroshi Nishioka, Hironori Saito and Takayuki Watanabe	
Non-equilibrium Plasma Modeling of Gas Tungsten Arc in Middle Current Range	695
S. Tashiro, T. Iwao, T. Inaba and M. Tanaka	
Numerical Simulation of Heat Source Property of Tube Cathode Arc and Influence on Weld Penetration Geometry in Anode Material	699
S. Tashiro, K. Yamamoto and M. Tanaka	
Numerical Analysis of Weld Penetration Geometry During Gas Tungsten Arc Welding Considering Influence of Metal Vapor Mixture	703
K. Yamamoto, M. Tanaka, S. Tashiro, K. Nakata and A. B. Murphy	

Symposium of the Development of Functional Materials by Fine Control of Nanostructures

Preface	707
Influence of Growth Conditions on the Morphology of Zinc Oxide Nanoarrays	709
Xiulan Hu, Yoshitake Masuda, Tatsuki Ohji and Kazuki Kato	
N₂-O₂ Separation Properties of SrY-type Zeolite Membranes	713
Takafumi Kato, Ken-ichiro Aramaki, Naoki Yoshihara, Kiyomi Ohara and Katsuki Kasukabe	
Preparation and Characterization of Au Nanoparticles/Polymer Composite Photonic Crystals	717
Takaaki Tsuruoka, Shoji Samitsu, Tomoya Aokata, Jun Matsui, Takashi Murashima, Kensuke Aakamatsu and Hidemi Nawafunc	
Physicochemical Characterization of the Pyridine-g-PEG Copolymer at the Interface	721
M. Fukaishi, T. Satomi, K. Ueno and H. Otsuka	
Spheroid Array Incorporated in Hydrogel as a Tissue-Engineered Construct	725
M. Yamamoto, T. Satomi, K. Ueno and H. Otsuka	
Synthesis of Glycodendrimer via Click Chemistry and Protein Affinities	729
Yoshiko Miura, Shunsuke Onogi and Kiyofumi Yamamoto	
Preparation and Properties of Dendritic Sugar Immobilized Surface	733
Tomohiro Fukuda, Shunsuke Onogi and Yoshiko Miura	
Relation between Preparation Conditions and Characteristics of OLED	737
Takanori Sasaki, Yoshimine Tanabu, Jin Li, Kaori Suzuki, Katsuyoshi Shinyama and Shigetaka Fujita	

Symposium of Frontier of Biointerfaces

Preface	741
----------------------	------------

A Polymer Platform Composed of Structurally Well-defined Stereocomplex Structures for Efficient Enzymatic Reactions	743
Hisao Matsuno, Yuya Nagasaka, Kimio Kurita and Takeshi Serizawa	
Characterization of Newly Synthesized Dendron-type Sugars with Self-Assembling Properties	747
N. Yamazaki, K. Ueno and H. Otsuka	
Chemical/Hydrothermal Modification of Titanium Surface for Improvement of Osteointegration	751
M. Ueda, R. Matsunaga, M. Ikeda and M. Ogawa	
Biosurface Design for Patterned Cell Culture Engineering	755
Y. Nagasaki, M. Ichino and K. Yoshimoto	
Measurement of the Respiratory Activity of Single Human Embryos by Scanning Electrochemical Microscopy	759
Hiroyuki Abe, Masaki Yokoo, Takahiro Itoh-Sasaki, Megumi Nasu, Kaori Goto, Yoko Kumasako, Yasuhisa Araki, Hitoshi Shiku, Tomokazu Matsue and Takafumi Utsunomiya	
Multiple Analysis of Respiratory Activity in the Identical Oocytes by Applying Scanning Electrochemical Microscopy	763
Masaki Yokoo, Takahiro Itoh-Sasaki, Hitoshi Shiku, Tomokazu Matsue and Hiroyuki Abe	
A Cell-Culture-Type Planar Ion Channel Biosensor	767
Toshifumi Asano, Hidetaka Uno, Koji Shibasaki, Makoto Tominaga and Tsuneo Urisu	
Nanoscale Structured Phospholipid Polymer Brush for Biointerface	771
Kazuhiko Kitano, Ryosuke Matsuno, Tomohiro Konno, Madoka Takai and Kazuhiko Ishihara	
Physicochemical Characterization of PEG Hydrogel to Estimate Biocompatibility	775
R. Sato, K. Ueno and H. Otsuka	
Anodic Dissolution of Ti in EMIC-AlCl₃ Ionic Liquid or LiCl-KCl Molten Salt for Enhancement of Adhesion Between Bone Cell and Ti Substrate	779
M. Ueda, T. Ohtsuka, K. Kuroda, R. Ichino and M. Okido	
Design of Polymeric Micelle with Stable Radicals in the Core from Acetal-Poly(ethyleneglycol)-<i>b</i>-poly(chloromethylstyrene)	783
T. Yoshitomi, D. Miyamoto and Y. Nagasaki	
Microchip Immunoassay Using High Density Bioconjugation on the Phospholipid Polymer Interface	787
Kazuki Nishikawa, Tomohiro Konno, Madoka Takai and Kazuhiko Ishihara	
Treatment of Protein Using Oxygen Plasma Produced by RF Discharge	791
Nobuya Hayashi and Yoshihito Yagyu	
Preparation of PEGylated Upconversion Nanophosphors with High Dispersion Stability under Physiological Conditions for Near-infrared Bioimaging	795
M. Kamimura, D. Miyamoto, Y. Saito, K. Soga and Y. Nagasaki	
Application of Stimuli-Responsive Nanogels for High-Performance Nanoreactor and Nanoreservoir of Gold Nanoparticles	799
Takahito Nakamura, Motoi Oishi and Yukio Nagasaki	
Plate Assay by UC Emission from Y₂O₃: Er Under Near Infrared Excitation	803
Y. Saito, K. Shimizu, M. Kamimura, H. Furusyo, K. Soga and Y. Nagasaki	
PEG-siRNA Conjugate Bearing 27 bp siRNA to Form Novel PEGylated Polyplexes with Improved Stability	807
Taiga Tatsumi, Motoi Oishi, Kazunori Kataoka and Yukio Nagasaki	
Differentiation Function of Embryonic Stem Cell Inducible Bio-interface Patterned by Photo-reactive Phospholipid Polymer	811
Taisuke Horie, Ryousuke Matsuno, Tomohiro Konno, Madoka Takai and Kazuhiko Ishihara	