

## CONTENTS

### Review Papers

- #025 Phase Change Materials' Application in Clothing Design ..... 103  
Shu-Hwa Lin
- #026 Development of Highly Conductive Langmuir-Blodgett Films —From Metallic toward Superconducting Properties—..... 107  
Yasuhiro Miura, Masaaki Kitao, Haruki Matsui, Ryo Watanabe

### Regular Papers

- #027 Thermal Conductivities, Rheological Behaviors and Photo-thermal Properties of Ethylene Glycol —based Nanofluids Containing Carbon Black Nanoparticles ..... 111  
Zhaoguo Meng, Dongxiao Han, Daxiong Wu, Haitao Zhu, Qingling Li
- #028 Effects of Monomer Constituents, Crosslinker Concentration and Ambient Temperature on the Turbidity of Poly (acrylamide-co-maleic acid) Gel ..... 115  
Ahmad Hassan, Satoru Yoshioka, Kazuhiro Hara
- #029 3D Flowerlike Copper Sulfide Nanostructures Synthesized From Copper (I) oxide Hollow Microspheres ..... 119  
Daxiong Wu, Yuejiao Wang, Canying Zhang, Haitao Zhu
- #030 Preparation and Fractal-Structure Characterization of Monolithic Silica Aerogel with a Short-Chain Ionic Liquid as the Solvent ..... 123  
Ching-Mao Wu, Szu-Yin Lin
- #031 Radiation Synthesis of Binary Hydrogels with Thermoresponsive Pores ..... 127  
Nobuhiro Sato, Manabu Ueda, Tomochika Matsuyama, Masaaki Sugiyama
- #032 Abnormal Protein Aggregation Due to the Presence of D-Aspartyl Residues in Cataractous Lenses ..... 131  
Noriko Fujii, Norihiko Fujii, Masaaki Sugiyama
- #033 Nano-structural Analyses of Copper-ion-adsorbed PAAm/SA Gels after UV-light Irradiation ..... 135  
Kazuhiro Hara, Yoshio Uemoto, Satoru Yoshioka
- #034 Direct Observation of Supercooled Water in Mortar Materials by Quasi-elastic Neutron Scattering..... 139  
Kazuhiro Mori, Kenji Iwase, Masaaki Sugiyama, Toshiharu Fukunaga, Osamu Yamamuro
- #035 Interaction between Atomic Vacancies in Crystalline Si Wafer: A Tight-binding Molecular Dynamics Study ..... 143  
Kazuaki Takata, Kenji Tsuruta, Takafumi Ogawa, Hiroshi Iyetomi
- #036 Preparation of a titanium thin film using a sputtering deposition process with a powder material target ..... 147  
Hiroharu Kawasaki, Tamiko Ohshima, Kento Arafune, Yoshihito Yagy, Yoshiaki Suda
- #037 Decomposition Characteristics of Benzene, Toluene and Xylene in an Atmospheric Pressure DC Corona Discharge  
I.Characteristics of Gaseous By-products ..... 151  
Kohki Satoh, Kohji Nagao, Hidenori Itoh
- #038 Low Temperature Growth of Carbon Nanomaterials on the Polymer Substrates by Microwave Plasma Technique ..... 157  
Raman Bekarevich, Syouta Miura, Akihisa Ogino, Alexander Rahachou, Masaaki Nagatsu
- #039 Numerical Analysis of Heat Source Properties of Pulsed Tungsten Inert Gas Arc..... 161  
Shinichi tashiro, Manabu Tanaka
- #040 ZnO:Al Thin Films with Buffer Layers Fabricated via Nitrogen Mediated Crystallization: Effects of N<sub>2</sub>/Ar Gas Flow Rate Ratio ..... 165  
Iping Suhariadi, Naho Itagaki, Kuwahara Kazunori, Koichi Oshikawa, Masaharu Shiratani, Kenta Nakahara, Giichiro Uchida, Daisuke Yamashita, Kunihiro Kamataki, Kazunori Koga
- #041 Control of C<sub>60</sub> Behavior for High Yield Synthesis of N@C<sub>60</sub> in RF-Plasma ..... 169  
Soon Cheon Cho, Toshiro Kaneko, Hiroyasu Ishida, Rikizo Hatakeyama
- #042 Low-Temperature Growth of Zinc Oxide Films from Zinc Acetate Solution Using Plasma-Assisted Mist Chemical Vapor Deposition ..... 173  
Kosuke Takenaka, Yusuke Okumura, Yuuichi Setsuhara
- #043 Preparation and Catalysis of Supported NiO Nanocluster for Oxidative Coupling of Thiophenol ..... 177  
Nobuyuki Ichikuni, Osamu Tsuchida, Jun Naganuma, Takayoshi Hara, Hironori Tsunoyama, Tatsuya Tsukuda, Shogo Shimazu
- #044 Synthesis of Au Nanocrystals/Porous Coordination Polymer Composites by Preferential Self-Assembly of Frameworks ... 181  
Hiroko Kawasaki, Misato Kumano, Takaaki Tsuruoka, Hidemi Nawafune, Kensuke Akamatsu

<b>#045 In situ synthesis of composite nanowires consisting of metal nanoparticles in ion-exchangeable polymer matrix using porous alumina templates</b> .....	<b>185</b>
Yurina Fukumoto, Takaaki Tsuruoka, Takashi Yanagishita, Hideki Masuda, Hidemi Nawafune, Kensuke Akamatsu	
<b>#046 Surface Modification of the Cellulose Nanofiber Extracted from Wood Powder</b> .....	<b>189</b>
Shinichiro CHIKU, Kentaro ABE, Fumiaki NAKATSUBO, Hiroyuki YANO	
<b>#047 Electrical and Optical Properties of GaNAs/GaAs MQW p-i-n Junctions</b> .....	<b>193</b>
Kohei Arimoto, Masahiro Shiraga, Hideto Shirai, Shunsuke Takeda, Masato Ohmori, Hidefumi Akiyama, Toshimitsu Mochizuki, Kenzo Yamaguchi, Hayato Miyagawa, Noriaki Tsurumachi, Shunsuke Nakanishi, Shyun Koshiba	
<b>#048 Structure and magnetic hysteresis of Gd/Fe multilayers patterned into periodic line patterns</b> .....	<b>197</b>
Kazuya Niyama, Yuji Yoshioka, Hayato Miyagawa, Shyun Koshiba, Takaaki Suzuki, Caroline Ross	
<b>#049 Enhanced Molecular Filtering at Nano-channel by using Self-spreading Lipid Bilayer as Molecular Transport and Filtering Medium</b> .....	<b>201</b>
Hideki Nabika, Kazuya Fukagawa, Kei Murakoshi	
<b>#050 Synthesis and characterization of Biphasic Vanadyl phthalocyanine and C<sub>60</sub> composite nanoparticles through a reprecipitation process</b> .....	<b>205</b>
Prabhakar Arunachalam, Shuai Zhang, Tomokazu Iyoda, Toshiyuki Abe, Tomokazu Iyoda, Keiji Nagai	
<b>#051 Synthesis of Nanometer Size Single Layer Graphene by Moderate Electrochemical Exfoliation</b> .....	<b>209</b>
Li Yu, Satoshi Yasuda, Kei Murakoshi	
<b>#052 Copper Nanowires, Nanotubes, and Hierarchical Nanopatterns: One-Dimensional Architectures using Ion Track Etched Templates</b> .....	<b>213</b>
Cornelia Neetzel, F. Münch, A. Schachtsiek, Wolfgang Ensinger	
<b>#053 Morphological change of PTFE by ion micro beam irradiation</b> .....	<b>219</b>
Akane Kitamura(Ogawa), Akahiro Satoh, Masashi Koka, Tomihiro Kamiya, Tomohiro Kobayashi	
<b>#054 Investigation of Nanopore Evolution in Track-Etched Poly(vinylidene fluoride) Membranes</b> .....	<b>223</b>
Tetsuya Yamaki, Nunung Nuryanthi, Hiroshi Koshikawa, Masaharu Asano, Shin-ichi Sawada, Shin Hasegawa, Yasunari Maekawa, Kay-Obbe Voss, Christina Trautmann, Reinhard Neumann	
<b>#055 Preparation of Diamond-like Carbon Films by Plasma Source Ion Implantation with External Glow Discharge</b> .....	<b>227</b>
Ruriko Hatada, Koumei Baba, Stefan Flege, Setsuo Nakao, Wolfgang Ensinger	
<b>#056 Influence of Film Density on Adhesions of HD-DLC Films Prepared by FAD System</b> .....	<b>233</b>
Shigeki Takago, Haruyuki Yasui, Makoto Taki	
<b>#057 Fabrication of Concave and Convex Structure Array Consisted of Epoxy Long-Nanowires by Light and Heavy Ion Beams Lithography</b> .....	<b>237</b>
Katsuyoshi Takano, Masaki Sugimoto, Atsushi Asano, Yuta Maeyoshi, Hiromi Marui, Masaaki Omichi, Saeki Akinori, Shu Seki, Takahiro Satoh, Yasuyuki Ishii, Tomihiro Kamiya, Takeru Ohkubo, Masashi Koka, Hiroyuki Nishikawa	
<b>#058 Diamonds Utilized in the Development of Single Ion Detector with High Spatial Resolution</b> .....	<b>241</b>
Shinobu Onoda, Takashi Yamamoto, Takeshi Ohshima, Junichi Isoya, Tokuyuki Teraji, Kenji Watanabe	
<b>#059 Application of sputter etching treatment to the formation of semiconducting silicide film on Si substrate</b> .....	<b>245</b>
Kenji Yamaguchi, F. Esaka, M. Sasase, H. Yamamoto, K. Hojou	
<b>#060 Biocompatible Evaluation of Ion-beam Irradiated PTFE Felt</b> .....	<b>251</b>
S. Morisaki, A. Ogura, S. Hamago, T. Tanaka, K. Mizutani, A. Yamada, Y. Suzuki	
<b>#061 Fabrication and characterization of non-labeled IgA immunosensor</b> .....	<b>255</b>
Ryuzoh Ohno, Hitoshi Ohnuki, Huihui Wang, T. Yokoyama, Daiju Tsuya, Mitsuru Izumi	
<b>#062 Fabrication of Tunneling Macro Junctions with Self-Assembled Monolayer and Langmuir-Blodgett Films</b> .....	<b>259</b>
Kengo Mochizuki, Hitoshi Ohnuki, Tatsuro Imakubo, Daiju Tsuya, Mitsuru Izumi	
<b>#063 Preparation of Two Layers Organic Thin Films on an ITO/PET Substrate using Alq<sub>3</sub>/ coumarin6 and PEDOT/PSS by Spin Coat</b> .....	<b>263</b>
Hina Chujo, Yusuke Tada, Nobuyuki Iwata, Hiroshi Yamamoto	
<b>#064 Substitution effect on thermoelectric properties of double Perovskite Sr<sub>2</sub>FeMoO<sub>6</sub></b> .....	<b>267</b>
Ayaka Oba, Kenji Kamishima, Koichi Kakizaki, Nobuyuki Hiratsuka	
<b>#065 Preparation of novel potassium, lanthanum-iron oxides and their magnetic properties</b> .....	<b>271</b>
Tatsuhiko Yamamoto, Kenji Kamishima, Koichi Kakizaki, Nobuyuki Hiratsuka	
<b>#066 Tunneling magnetoresistance in BaTiO<sub>3</sub>/Fe<sub>3</sub>O<sub>4</sub> composites</b> .....	<b>275</b>
Tomoya Noshiro, Kenji Kamishima, Kakizaki Koichi, Hiratsuka Nobuyuki, masamichi sakai, kowashi watanabe	
<b>#067 Molecular Arrangement of Organo-modified Aluminosilicate in Langmuir-Blodgett Films and Mixed Monolayer Behavior with Biodegradable Polymers</b> .....	<b>279</b>
Jun-ichi Kusaka, Shuntaro Arai, Munehiro Kubota, Atsuhiko Fujimori	

<b>#068</b>	<b>Fabrication of Highly Order Layered Organization of Polymer Nanosphere</b> .....	<b>283</b>
	Satoshi Chiba, Shuntaro Arai, Yohei Kaneko , Makoto Taguchi , Yuji Shibasaki, Atsuhiko Fujimori	
<b>#069</b>	<b>Control of Arrangement for DNA Molecules Chemisorbed to the Organized Molecular Films of Comb Copolymers Containing s-Triazine</b> .....	<b>287</b>
	Makoto Taguchi, Atsuhiko Fujimori	
<b>#070</b>	<b>Morphological Transition from Nanosheet to Nanosphere of Ternary Comb Copolymers with Carbazole Rings Induced by an Increase in Surface Pressure</b> .....	<b>291</b>
	Yohei Kaneko, Atsuhiko Fujimori	
<b>#071</b>	<b>Effect of Molecular Weight Distribution on the Crystallinity and Monolayer Morphology of N-alkylated Poly (p-benzamides)</b> .....	<b>295</b>
	Yuta Yanagimachi, Makoto Taguchi, Satoshi Chiba, Yuji Shibasaki, Atsuhiko Fujimori	
<b>#072</b>	<b>Fine Structure of Multi-particle Layered Organization for Organo-modified Zirconium Dioxides Fabricated by the Langmuir-Blodgett technique</b> .....	<b>299</b>
	Hayato Iwashita, Sho Hakozaiki, Seigou Kawaguchi, Fujimori, Atsuhiko	
<b>#073</b>	<b>Stretchable and Highly Conductive Polymer Films</b> .....	<b>303</b>
	Yuechen Li, Yuka Masuda, Yu Iriyama, Hidenori Okuzaki	
<b>#074</b>	<b>Effect of pH on Structure and Conductivity of PEDOT/PSS</b> .....	<b>307</b>
	Yuta Mochizuki, Tatsuhiko Horii, Hidenori Okuzaki	
<b>#075</b>	<b>Molecular Arrangements of Regioregular and Regiorandom Poly(3-hexylthiophene): Molecular Dynamics Simulations</b> ...	<b>311</b>
	Shigeaki Obata, Yukihiro Shimoi	
<b>#076</b>	<b><math>\beta</math>-Cyclodextrin Interaction with N-Hexanoyl Homoserine Lactone as Quorum Sensing Signal Produced in Gram-Negative Bacteria</b> .....	<b>315</b>
	Chigusa Okano, Marina Arai, Eri Nasuno, Ken-ichi Iimura, Tomohiro Morohoshi, Tsukasa Ikeda, Norihiro Kato	
<b>#077</b>	<b>Determination of hydrogen diffusivity depending on the concentration in titanium-hydride by means of the diffraction-enhanced X-ray imaging method</b> .....	<b>319</b>
	Kaoru Mizuno, Takashi Kanai, Kei-ichi Hirano, Hiroyuki Okamoto	
<b>#078</b>	<b>Drastic changes in the substrate specificity of geranylgeranyl diphosphate synthase from Sulfolobus acidocaldarius by a single amino acid substitution</b> .....	<b>325</b>
	Takeshi Nakamura, Masahiko Nagaki, Norimasa Ohya	
<b>#079</b>	<b>Preparation of Photolabile and Cytocompatible Polymer Surface to Control Cell Adhesion and Detachment</b> .....	<b>329</b>
	Batzaya Byambaa, Tomohiro Konno, Kazuhiko Ishihara	