

Institute of Physics Publishing

Eighth International Conference on Laser Ablation

COLA 05

Journal of Physics: Conference Series Vol. 59

September 11-16, 2005
Banff, Canada

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-60560-283-7

Some format issues inherent in the e-media version may also appear in this print version.

Copyright (2005) by the Institute of Physics Publishing.

All rights reserved.

For permission requests, please contact the Institute of Physics Publishing at the address below.

Institute of Physics Publishing
Dirac House, Temple Back
Bristol BS1 6BE UK

Tel +44 (0)117 929 7481
Fax +44 (0)117 929 4318

Institute of Physics Publishing

Eighth International Conference on Laser Ablation
2005

TABLE OF CONTENTS

The Role of Energy and Phase Relaxation (T_1 and T_2) in Ultrafast Laser Ablation.....	1
<i>Juergen Reif, Florenta Costache, Sebastian Eckert</i>	
Laser-matter Interaction in the Bulk of Transparent Dielectrics: Confined Micro-explosion	5
<i>Eugene Gamaly, Barry Luther-Davies, Andrei Rode, Saulius Joudkazis, Hiroki Misawa, Ludovic Hallo, Philippe Nicolai, Vladimir Tikhonchuk</i>	
Time-resolved Diffraction Profiles and Structural Dynamics of Ni Film Under Short Laser Pulse Irradiation	11
<i>Zhibin Lin, Leonid V Zhigilei</i>	
Industrially-scaled Room-temperature Pulsed Laser Deposition of Ti-TiN Multilayer Coatings	16
<i>Juergen M Lackner</i>	
Thin Films Growth Parameters in MAPLE; Application to Fibrinogen.....	22
<i>M Jelinek, R Cristescu, T Kocourek, V Vorliček, J Remsa, L Stamatin, D Mihaiescu, I Stamatin, I N Mihailescu, D B Chrisey</i>	
Pulsed Laser Deposition for Coating Applications	28
<i>Ralph Delmdahl, Alexander Wiessner</i>	
A Laser Beam Model for High Performance Microdrilling	32
<i>S Lazare, V N Tokarev</i>	
CO₂ Laser Cladding of VERSAlloyTM on Carbon Steel with Powder Feeding	36
<i>Jae-Do Kim, Jin-Wook Kweon</i>	
Nitridation of Titanium Surface by the Irradiation of YAG Laser Pulses in N₂/O₂ Gas Mixture and Liquid Nitrogen	40
<i>N Takada, H Ushida, K Sasaki</i>	
Generation of Nanoparticles by Laser Ablation: Combined MD-DSMC Computational Study	44
<i>Tatiana E Itina, Leonid V Zhigilei</i>	
Excimer Laser Annealing of Perovskite Thin Films: Morphology and Gas-sensor Properties	50
<i>X Du, J Tunney, M Post, J J Dubowski</i>	
Laser Ablation of Nanoscale Particles with 193 nm Light.....	54
<i>J H Choi, D Lucas, C P Koshland</i>	
Reaction Between Laser Ablation Plume and Ambient Gas Studied by Laser-induced Fluorescence Imaging Spectroscopy	60
<i>K Sasaki, H Watari</i>	
Nano-patterning by Pulsed Laser Irradiation in Near Field	64
<i>M H Hong, Y Lin, G X Chen, L S Tan, Q Xie, B Lukyanchuk, L P Shi, T C Chong</i>	

Response of Ultrathin Metal Films to Ultrafast Laser Irradiation: a Comparative Molecular-dynamics Study	68
Arun K Upadhyay, Herbert M Urbassek	
Crystallized Hydroxyapatite Coatings Deposited by PLD with Targets of Different Densities	75
M Katto, K Ishibashi, K Kurosawa, A Yokotani, S Kubodera, A Kameyama, T Higashiguchi, T Nakayama, H Katayama, M Tsukamoto, N Abe	
Organic Active Layers for Chemical Sensors Prepared by Matrix Assisted Pulse Laser Deposition (MAPLD).....	79
V Myslik, R Frycek, M Vrnata, F Vyslouzil, P Fitl, M Jelinek	
Micromachining of Silicon Carbide Using Femtosecond Lasers	84
M Farsari, G Filippidis, S Zoppel, G A Reider, C Fotakis	
Investigation and Control of the Uniformity of Drug Nanoparticles Directly Deposited on the Particulate Surfaces of Excipient by PLD	88
S Nagare, Jo Sagawa, M Senna	
Evaluation of the Smallest Protein Units in a Thin Film Deposited by IR Laser	92
S Nakayama, M Senna	
Elimination of Large Particulate Units from Silk Fibroin PLD Films by Post-treatments.....	96
S Nakayama, M Senna	
Molecular Dynamics Simulation of Ultrafast Laser Ablation of Fused Silica.....	100
C Cheng, A Q Wu, X Xu	
Incubation Behaviour in Triazenepolymer Thin Films Upon Near-infrared Femtosecond Laser Pulse Irradiation.....	105
J Bonse, S M Wiggins, J Solis, H Sturm, L Urech, A Wokaun, T Lippert	
High Repetition Rate and Low Energy Femtosecond Laser Ablation Coupled to ICPMS Detection: a New Analytical Approach for Trace Element Determination in Solid Samples.....	112
C Pecheyran, S Cany, P Chabassier, E Mottay, O F X Donard	
Laser Ablation As Enabling Technology for the Structuring of Optical Multilayer Structures	118
N Hendrickx, G Van Steenberge, P Geerinck, P Van Daele	
Substrate-free Structures of Iron-doped Ni-Mn-Ga Thin Films Prepared by Pulsed Laser Deposition	122
Antti Hakola, Oleg Heczko, Akusti Jaatinen, Ville Kekkonen, Timo Kajava	
Ejection of Matrix-polymer Clusters in Matrix-assisted Laser Evaporation: Coarse-grained Molecular Dynamics Simulations	126
Elodie Leveugle, Leonid V Zhigilei, Aaron Sellinger, James M Fitz-Gerald	
Ultrafast Laser Assisted Field Evaporation and Atom Probe Tomography Applications.....	132
B Gault, E Mottay, A Courjaud, F Vurpillot, A Bostel, A Menand, B Deconihout	
A High-power Laser Ablation Ion Source for Penning Trap Studies of Nuclear Reaction Products	136
D A Davies, D J Morrissey, G Bollen, P A Lofy, J Ottarson, S C Schwarz	
Large-area Production of Yttria-stabilized Zirconia by Pulsed Laser Deposition.....	140
N Pryds, J Schou, S Linderoth	

Matrix Assisted Pulsed Laser Evaporation of Pullulan Tailor-made Biomaterial Thin Films for Controlled Drug Delivery Systems	144
<i>R Cristescu, M Jelinek, T Kocourek, E Axente, S Grigorescu, A Moldovan, D E Mihaiescu, M Albulescu, T Buruiana, J Dybal, I Stamatin, I N Mihailescu, D B Chrisey</i>	
Doping of Silicon by Carbon During Laser Ablation Process	150
<i>G Raciukaitis, M Brikas, V Kazlauskienė, J Miskinis</i>	
Localized Synthesis of Single-walled Carbon Nanotubes on Silicon Substrates by a Laser Heating Catalytic CVD	155
<i>Shohei Chiashi, Masamichi Kohno, Yasuyuki Takata, Shigeo Maruyama</i>	
Si-K_α Radiation Generated by the Interaction of Femtosecond Laser Radiation with Silicon	159
<i>A Horn, C Kaiser, R Ritschel, T Mans, P Russbühl, H D Hoffmann, R Poprawe</i>	
Numerical Modeling of Pulsed Laser Ablation of Carbon Particles in an Aerosol	164
<i>G A Lukyanov, A N Volkov, Y Khang, S V Kozyrev, D V Leshchev, N Yu Bykov, O I Vakulova</i>	
Excimer Laser-induced Material Modification to Create Nanometer High Smooth Patterns in Glass Using Mask Projection	169
<i>Thomas Rudolph, Klaus Zimmer, Rico Böhme, David Ruthe</i>	
Backside Etching of Fused Silica with Ultra-short Laser Pulses at the Interface to Absorbing Liquid	173
<i>R Böhme, S Pissadakis, M Ehrhardt, T Rudolph, D Ruthe, K Zimmer</i>	
Laser Induced Nanobump Array on Magnetic Glass Disk for Low Flying Height Application	177
<i>W J Wang, G H Lim, W D Song, K D Ye, J Zhou, M H Hong, B Liu</i>	
Analysis of Laser-induced Hydrodynamic Phenomena in the Laser Shock Cleaning Process	181
<i>Bukuk Oh, Dongsik Kim, Jong-Myoung Lee</i>	
Laser Ablation of Silver in Aqueous Ambient: Effect of Laser Pulse Wavelength and Energy on Efficiency of the Process	185
<i>P Smejkal, J Pfleger, B Vlčková, O Dammer</i>	
Photoluminescent Si and Ge Nanoparticles by Reactive PLD	189
<i>Daria Riabinina, Christophe Durand, Mohamed Chaker, Federico Rosei</i>	
Effect of Molecular Weight on the Physicochemical Modifications Induced in the UV Laser Ablation of Doped Polymers	193
<i>E Rebollar, G Bounos, M Oujja, S Georgiou, M Castillejo</i>	
Laser Ablation of Ag in Water and in Nitrogen Gas Atmosphere: Shift and Broadening of Emission Line Profile of Ablated Ag Atoms	198
<i>Satoru Masai, Kohichi Hirata, Tetsuo Sakka, Yukio H Ogata</i>	
Effect of Citrate Ions on Laser Ablation of Ag Foil in Aqueous Medium	202
<i>K Sisková, B Vlčková, P-Y Turpin, C Fayet, J Hromádková, M Slouf</i>	
Micro Patterning of Fused Silica by ArF- and F₂-laser Ablation	206
<i>Jürgen Ihlemann, Malte Schulz-Ruhtenberg, Thomas Fricke-Begemann</i>	
Apparent Excitation Temperature in Laser-induced Plasmas	210
<i>J A Aguilera, C Aragón</i>	
Low-temperature Growth of Epitaxial PZT/LSMO/LAO Film by Excimer Laser-assisted Metal Organic Deposition (ELAMOD)	218
<i>T Tsuchiya, I Yamaguchi, T Manabe, S Mizuta, T Kumagai</i>	

Transmission Electron Microscopy (TEM) Studies of the Epitaxial and Polycrystalline Tin Oxide Films Prepared by the Excimer Laser-assisted Metal Organic Deposition	224
<i>T Tsuchiya, K Daoudi, A Watanabe, T Kumagai, S Mizuta</i>	
Emission Spectroscopy Analysis During Nopal Cladodes Dethorning by Laser Ablation	230
<i>M Peña-Díaz, L Ponce, M Arronte, T Flores</i>	
Peculiarities of Light Scattering by Nanoparticles and Nanowires Near Plasmon Resonance Frequencies	234
<i>B S Lukyanchuk, Z B Wang, M Tribelsky, V Ternovsky, M H Hong, T C Chong</i>	
Shaping Nanoparticles with Laser Light: a Multi-step Approach to Produce Nanoparticle Ensembles with Narrow Shape and Size Distributions	240
<i>D Blázquez Sánchez, F Hubenthal, F Träger</i>	
Topdown Femtosecond Laser-interference Technique for the Generation of New Nanostructures	245
<i>Yoshiki Nakata, Noriaki Miyanaga, Tatsuo Okada</i>	
Mechanisms of Femtosecond Laser Nanoprocessing of Biological Cells and Tissues	249
<i>Alfred Vogel, Joachim Noack, Gereon Hüttmann, Günther Paltauf</i>	
Synthesis of Magnetic CoPt/SiO₂ Core-shell Nanoparticles	255
<i>Takafumi Seto, Kenji Koga, Fumiyoishi Takano, Hiroyuki Akinaga, Takaaki Orii, Makoto Hirasawa, Mitsuhiro Murayama</i>	
Synthesis of Nanohybrid Materials by Femtosecond Laser Ablation in Liquid Medium	259
<i>A Said, L Sajti, S Giorgio, W Marine</i>	
Novel Aspects of Materials Processing by Ultrafast Lasers: from Electronic to Biological and Cultural Heritage Applications	266
<i>C Fotakis, V Zorba, E Stratakis, A Athanassiou, P Tzanetakis, I Zergioti, D G Papagoglou, K Sambani, G Filippidis, M Farsari, V Pouli, G Bounos, S Georgiou</i>	
Concentrating Light Into Nanometer Domain Using Nanoscale Ridge Apertures and Its Application in Laser-based Nanomanufacturing	273
<i>X Xu, E X Jin, S M Uppuluri, L Wang</i>	
Direct Nanomachining of Inorganic Transparent Materials Using Laser Plasma Soft X-rays	279
<i>Tetsuya Makimura, Hisao Miyamoto, Satoshi Uchida, Hiroyuki Niino, Kouichi Murakami</i>	
Near-field Scanning Optical Microscopy Based Nanostructuring of Glass	285
<i>A Chimmalgi, D J Hwang, C P Grigoropoulos</i>	
Optical Limiting Phenomena of Carbon Nanoparticles Prepared by Laser Ablation in Liquids	289
<i>G X Chen, M H Hong, L S Tan, T C Chong, H I Elim, W Z Chen, W Ji</i>	
Plume Investigations of the Mechanisms of SiO Laser Ablation at 266 nm	293
<i>Maria Jadraque, Margarita Martín, Magna Santos, Luis Díaz, Miroslaw Sawczak, Adam Cenian, Gerard Sliwinski</i>	
Synthesis and Optimization of Tungsten and Tungsten Oxide Films Produced by Laser Ablation	297
<i>S Shuntaro, T Suzuki, M Hirai, H Suematsu, C Grigoriu, C Sima, I Nicolae, W Waldhauser, J M Lackner</i>	

Effect of Laser Irradiation on Thermal Conductivity of ZnO Nanofluids.....	301
<i>Jonggan Hong, Sang Hyun Kim, Dongsik Kim</i>	
Pulsed Laser Deposition of Polymers Doped with Fluorescent Probes.	
Application to Environmental Sensors.....	305
<i>E Rebollar, Mm Villavieja, S Gaspard, M Oujja, T Corrales, S Georgiou, C Domingo, P Bosch, M Castillejo</i>	
UV-assisted Selective Chemical Etching of Relief Gratings in Er/Yb-codoped IOG1 Phosphate Glass	310
<i>C Pappas, S Pissadakis</i>	
Ejection of Matrix-polymer Clusters in Matrix-assisted Laser Evaporation: Experimental Observations	314
<i>Aaron T Sellinger, Elodie Leveugle, Kristy Gogick, Guillaume Peman, Leonid V Zhigilei, James M Fitz-Gerald</i>	
Local Growth of Vertical Aligned Carbon Nanotubes by Laserinduced Surface Modification of Coated Silicon Substrates.....	318
<i>K Zimmer, R Böhme, D Ruthe, Th Rudolph, B Rauschenbach</i>	
Computational Studies of Ultraviolet Ablation of Poly(methyl Methacrylate).....	322
<i>P F Conforti, Y G Yingling, B J Garrison</i>	
Quantitative Emission from Femtosecond Microplasmas for Laser-induced Breakdown Spectroscopy.....	328
<i>M T Taschuk, S E Kirkwood, Y Y Tsui, R Fedosejevs</i>	
Sub-wavelength Ripple Formation on Various Materials Induced by Tightly Focused Femtosecond Laser Radiation.....	333
<i>Ralph Wagner, Jens Gottmann</i>	
Time Resolved Shadowgraph Images of Silicon During Laser Ablation: Shockwaves and Particle Generation.....	338
<i>C Y Liu, X L Mao, R Greif, R E Russo</i>	
Expansion and Radiative Cooling of the Laser Induced Plasma.....	343
<i>Sy-Bor Wen, Xianglei Mao, Chunyi Liu, Ralph Greif, Richard Russo</i>	
Growth of Carbon Nanofibers on Metal-catalyzed Substrates by Pulsed Laser Ablation of Graphite.....	348
<i>Y Suda, A Tanaka, A Okita, Y Sakai, H Sugawara</i>	
Femtosecond Laser Ablation in Aqueous Solutions: a Novel Method to Synthesize Non-toxic Metal Colloids with Controllable Size.....	354
<i>A V Kabashin, M Meunier</i>	
Dependence of Femtosecond Laser Ablation for Organic Molecules on Chosen Substrate.....	360
<i>M Kurata-Nishimura, T Kato, Y Matsuo, T Kobayashi, R Oyama, Y Okamura-Oho, J Kawai, Y Hayashizaki</i>	
Kinetic Energy of Ions Produced with First-, Second-, and Multi-shot Femtosecond Laser Ablation on a Solid Surface	364
<i>Tohru Kobayashi, Toshiyuki Kato, Mizuki Kurata-Nishimura, Yukari Matsuo, Jun Kawai, Tohru Motobayashi, Yoshihide Hayashizaki</i>	
Femtosecond-pulsed Laser Deposition of Diamond-like Carbon Films Onto Silicone Rubber.....	368
<i>S Yoshida, M Okoshi, N Inoue</i>	

Comparison Between Femtosecond and Nanosecond Laser Ablation of Solution Samples Applied on a Substrate	372
<i>T Kato, T Kobayashi, Y Matsuo, M Kurata-Nishimura, R Oyama, Y Matsumura, H Yamamoto, J Kawai, Y Hayashizaki</i>	
Epitaxially Growth of β-FeSi₂ Thin Films on Si(100) Substrates from ϵ-FeSi Targets with ArF Excimer Laser Deposition	376
<i>M Tode, Y Takigawa, M Ohmukai, K Kurosawa, M Muroya</i>	
A Deep Micro-trench on Silica Glass Fabricated by Laserinduced Backside Wet Etching (LIBWE)	380
<i>Yoshizo Kawaguchi, Hiroyuki Niino, Tadatake Sato, Aiko Narazaki, Ryozo Kurosaki</i>	
Laser Ablation of a Zn Target in Electric Field	384
<i>Hye Sun Park, Sang Hwan Nam, Seung Min Park</i>	
Preparation of ZnS Semiconductor Nanocrystals Using Pulsed Laser Ablation in Aqueous Surfactant Solutions	388
<i>S-H Choi, T Sasaki, Y Shimizu, J-W Yoon, W T Nichols, Y-E Sung, N Koshizaki</i>	
Synthesis of Photoluminescent Colloidal Silicon Nanoparticles by Pulsed Laser Ablation in Liquids	392
<i>I Umezu, H Minami, H Senoo, A Sugimura</i>	
Micropatterning of the SiO₂ Coated Si Surface Using Femtosecond Laser Diffraction	396
<i>Y Fukami, M Okoshi, N Inoue</i>	
Rare Earth Doped Gallium Gadolinium Orthogallate Films Prepared by Pulsed Laser Deposition	400
<i>J Lancok, M Novotný, C Garapon, M Jelínek</i>	
Direct Patterning of Complex Oxides by Pulsed Laser Deposition Through Stencils	404
<i>Paul te Riele, Arjen Janssens, Guus Rijnders, Dave H A Blank</i>	
Laser Direct Writing of Thin-film Copper Structures As a Modification of Lithographic Processes	408
<i>F Meyer, A Ostendorf, U Stute</i>	
Computational Study of Cooling Rates and Recrystallization Kinetics in Short Pulse Laser Quenching of Metal Targets	413
<i>William H Duff, Leonid V Zhigilei</i>	
Residual Thermal Effects in Laser Ablation of Metals	418
<i>Anatoliy Y Vorobyev, Chunlei Guo</i>	
Plume Diagnostics and Room-temperature Deposition of Carbon Nanotubes and Nano-onions at 248 nm	424
<i>G Radhakrishnan, P M Adams, F D Ross</i>	
Mechanism for Femtosecond Laser Pulse Patterning of Self-assembled Monolayers on Gold-coated Substrates	428
<i>S E Kirkwood, M R Shadnam, A Amirfazli, R Fedosejevs</i>	
Wavelength Dependence on the Formation of SiO₂ Films by Ultraviolet-laser-induced Photochemical Deposition Using Silicone Rubber	432
<i>H Takao, M Okoshi, N Inoue</i>	
Pulsed Laser-induced Effects in the Material Properties of Tungsten Thin Films	436
<i>R Evans, S Camacho-López, M A Camacho-López, C Sánchez-Pérez, A Esparza-García</i>	

Investigation on Laser Micro Ablation of Metals Using Ns-multi-pulses	440
<i>C Hartmann, A Gillner, Ü Aydin, R Noll, T Fehr, C Gehlen, R Poprawe</i>	
Nanoparticle Formation in the Expansion Process of a Laser Ablated Plume	445
<i>T Takiya, I Umezu, M Yaga, M Han</i>	
UV Ultrafast Laser Processing Using Phase Masks	449
<i>J Ihlemann, J H Klein-Wiele, J Bekesi, P Simon</i>	
Reduction of Particulate Density in BN Films Prepared by Pulsed Laser Deposition	453
<i>Günter Reiße, Dirk Rost, Steffen Weißmantel</i>	
Investigation of the Formation of Nanostructures on Silicon Thin Films by Excimer Laser Irradiation	458
<i>J Eizenkop, D G Georgiev, I Avrutsky, G Auner, V Chaudhary</i>	
PLD-grown Yb-doped Sesquioxide Films on Sapphire and Quartz Substrates	462
<i>Yury Kuzminykh, Hanno Scheife, Sebastian Bär, Klaus Petermann, Günter Huber</i>	
1.5μm Light Emission of Er³⁺ Ions Doped in SiO₂ Films Including Si Nanocrystallites and in SiO_x Films	466
<i>Tetsuya Makimura, Hiroshi Uematsu, Yuuki Okada, Kouichi Murakami</i>	
Langmuir Probe Diagnosis of Laser Ablation Plasmas	470
<i>James G Lunney, Brendan Doggett, Yitzhak Kaufman</i>	
Pulsed Laser Deposition of Er Doped Tellurite Films on Large Area	475
<i>M Bouazaoui, B Capoen, A P Caricato, A Chiasera, A Fazzi, M Ferrari, G Leggieri, M Martino, M Mattarelli, M Montagna, F Romano, T Tunno, S Turrel, K Vishnubhatla</i>	
Ferromagnetism in Doped TiO₂ Thin Films Prepared by PLD	479
<i>S Duhalde, C E Rodríguez Torres, M F Vignolo, F Golmar, C Chillote, A F Cabrera, F H Sánchez</i>	
Resistance Switching Induced by Electric Fields in Manganite Thin Films	483
<i>M Villafuerte, G Juárez1, S Duhalde, F Golmar, C L Degreef, S P Heluani</i>	
Carbon-nanotube Cathode Modified by Femtosecond Laser Ablation	487
<i>M Hashida, S Shimizu, S Sakabe</i>	
Effects of Deposition Parameters on the Properties of Amorphous Carbon Nitride Thin Films Prepared by Laser Ablation	492
<i>L Escobar-Alarcón, A Arrieta, E Camps, S Romero, S Muhl, Ma Camacho-López</i>	
Determination of Hermite Gaussian Modes Using the Moving Knife-edge	497
<i>O Mendoza-Yero, M Arronte</i>	
Water Ice As a Matrix for Film Production by Matrix-assisted Pulsed Laser Evaporation (MAPLE)	501
<i>K Rodrigo, J Schou, B Toftmann, R Pedrys</i>	
Nitrogen Doping of ZnO Thin Films Grown by Plasma-assisted Pulsed-laser Deposition	505
<i>M Novotny, J-R Duclère, E McGlynn, M O Henry, R O'Haire, J-P Mosnier</i>	
Stimulated Emission and Field Emission Characteristics of ZnO Nano-rods Synthesized by Laser Ablation	510
<i>T Okada, K Kawashima, M Ueda</i>	
Pulsed Laser Ablation and Deposition of Complex Oxides	514
<i>T Ohnishi, T Yamamoto, S Meguro, H Koinuma, M Lippmaa</i>	

Continuous Wave Infrared Laser Deposition of Organic Thin Films	520
<i>Seiichiro Yaginuma, Jun Yamaguchi, Masamitsu Haemori, Kenji Itaka, Yuji Matsumoto, Michio Kondo, Hideomi Koinuma</i>	
Laser Induced Backside Wet Etching: Mechanisms and Fabrication of Micro-optical Elements	526
<i>G Kopitkovas, T Lippert, J Venturini, C David, A Wokaun</i>	
'All-in-One' Chip Fabrication by 3D Femtosecond Laser Microprocessing for Biophotonics	533
<i>K Sugioka, Y Cheng, K Midorikawa</i>	
Laser-induced Backside Wet Etching of Silica Glass with Ns-pulsed DPSS UV Laser at the Repetition Rate of 40 kHz	539
<i>Hiroyuki Niino, Yoshizo Kawaguchi, Tadatake Sato, Aiko Narazaki, Thomas Gumpenberger, Ryozo Kurosaki</i>	
Negative Pressure Model for Surface Foaming of Collagen and Other Biopolymer Films by KrF Laser Ablation	543
<i>S Lazare, V N Tokarev, A Sionkowska, M Wiśniewski</i>	
Laser Desorption/ionization from Nanostructured Surfaces: Nanowires, Nanoparticle Films and Silicon Microcolumn Arrays	548
<i>Yong Chen, Guanghong Luo, Jiajie Diao, Olesya Chornoguz, Mark Reeves, Akos Vertes</i>	
LIF Observation of Neutral Atoms and Ions Produced by Femtosecond Laser Ablation of Sm on a Substrate	555
<i>Yukari Matsuo, Tohru Kobayashi, Mizuki Kurata-Nishimura, Toshiyuki Kato, Tohru Motobayashi, Jun Kawai, Yoshihide Hayashizaki</i>	
Emission Spectroscopy of Ablation Plumes in Liquid for Analytical Purposes	559
<i>Tetsuo Sakka, Hisayuki Oguchi, Yukio H Ogata</i>	
Diagnostics of Liquid-phase Laser Ablation Plasmas by Spectroscopic Methods	563
<i>H Ushida, N Takada, K Sasaki</i>	
Femtosecond Laser Ablation of Metals and Crater Formation by Phase Explosion in the High-fluence Regime	567
<i>Bukuk Oh, Dongsik Kim, Jaegu Kim, Jae-Hoon Lee</i>	
UV, Visible and IR Laser Interaction with Gelatine	571
<i>M Oujja, E Rebollar, C Abrusci, A Del Amo, F Catalina, M Castillejo</i>	
Plume Analysis During Pulsed Laser Ablation of Silicon in Hydrogen Gas	575
<i>M Takata, I Umezu, A Sugimura</i>	
Change in Absorptance of Metals Following Multi-pulse Femtosecond Laser Ablation	579
<i>Anatoliy Y Vorobyev, Chunlei Guo</i>	
Femtosecond/nanosecond Dual-pulse Orthogonal Geometry Plasma Plume Reheating for Compositional Analysis of Ancient Copper-based-alloy Artworks	585
<i>A Santagata, A De Giacomo, O De Pascale, M Dell'Aglio, R Teghil, A De Bonis, M Corrente, G P Parisi, S Orlando</i>	
Nanomilling Surfaces Using Near-threshold Femtosecond Laser Pulses	591
<i>S E Kirkwood, M T Taschuk, Y Y Tsui, R Fedosejevs</i>	
Simulation of the Thermionic Emission During Ultrashort Pulse Laser Ablation of Metals	595
<i>T Balasubramani, S H Jeong</i>	

Microstructural Characterization of Chromium Oxide Thin Films Grown by Remote Plasma Assisted Pulsed Laser Deposition	600
<i>C Madi, M Tabbal, T Christidis, S Isber, B Nsouli, K Zahraman</i>	
UV Laser Controlled Quantum Well Intermixing in InAlGaAs/GaAs Heterostructures	605
<i>J Genest, J J Dubowski, V Aimez, N Pauc, D Drouin, M Post</i>	
UV-femtosecond Laser Ablation of SrTiO₃ Single Crystals	610
<i>S Zoppel, D Gray, M Farsari, R Merz, G A Reider, C Fotakis</i>	
Nano-graphene Growth and Texturing by Nd:YAG Pulsed Laser Ablation of Graphite on Silicon	616
<i>E Cappelli, S Orlando, V Morandi, M Servidori, C Scilletta</i>	
F₂ Excimer Laser (157 nm) Ablation of Polymers: Relation of Neutral and Ionic Fragment Detection and Absorption	625
<i>M Kuhnke, L Cramer, P E Dyer, J T Dickinson, T Lippert, H Niino, M Pervolaraki, C D Walton, A Wokaun</i>	
Ablation of Metal-containing Perylene Tetracarboxylic Dianhydride with Third Harmonic of Nd:YAG Laser	632
<i>S Nishio, C Kanezawa, K Hatanaka, J Hobley, H Fukumura</i>	
Ferroelectric Mesoscopic Structures by Room-temperature PLD	636
<i>C Harnagea, C V Cojocaru, O Gautreau, F Rosei, A Pignolet</i>	
Hydrodynamic Multi-phase Model for Simulation of Laser-induced Non-equilibrium Phase Transformations	640
<i>Alexey N Volkov, Leonid V Zhigilei</i>	
Modelling of the Energy Density Deposition Profiles of Ultrashort Laser Pulses Focused in Optical Media	646
<i>F Vidal, P-L Lavertu, N Bigaouette, F Moore, I Brunette, D Giguère, J-C Kieffer, G Olivié, T Ozaki</i>	
Resonant Infrared Pulsed Laser Deposition of a Polyimide Precursor	651
<i>N L Dygert, K E Schriver, R F Haglund Jr</i>	
Direct Laser Ablation and Ionization of Solids for Chemical Analysis by Mass Spectrometry	657
<i>J K Holt, E J Nelson, G L Klunder</i>	
Laser Surface Modification of Ti Implants to Improve Osseointegration	662
<i>M Marticorena, G Corti, D Olmedo, M B Guglielmotti, S Duhalde</i>	
Microstructures Formation on Titanium Plate by Femtosecond Laser Ablation	666
<i>M Tsukamoto, T Kayahara, H Nakano, M Hashida, M Katto, M Fujita, M Tanaka, N Abe</i>	
Structural and Optical Properties of ZnMgO Thin Films Grown by Pulsed Laser Deposition Using ZnO-MgO Multiple Targets	670
<i>Toshihiko Maemoto, Nobuyasu Ichiba, Hiroaki Ishii, Shigehiko Sasa, Masataka Inoue</i>	
A Study of the Electric Field Intensity Distribution of a Modified Probe for NSOM Lithography	674
<i>J-B Kim, W-S Chang, S-J Na</i>	
Laser-induced Photoemission As a Probe of Slip Band Formation in Single Crystal and Polycrystalline Aluminum During Uniaxial Deformation	678
<i>M Cai, S C Langford, J T Dickinson, David J Pitchure, Lyle E Levine</i>	
Heat Accumulation During High Repetition Rate Ultrafast Laser Interaction: Waveguide Writing in Borosilicate Glass	682
<i>Haibin Zhang, Shane M Eaton, Jianzhao Li, Peter R Herman</i>	

Colour Marking of Transparent Materials by Laser-induced Plasma-assisted Ablation (LIPAA).....	687
Yasutaka Hanada, Koji Sugioka, Iwao Miyamoto, Katsumi Midorikawa	
Deep Ultraviolet Laser Micromachining of Novel Fibre Optic Devices	691
J Li, J Dou, P R Herman, T Fricke-Begemann, J Ihlemann, G Marowsky	
F2-laser Microfabrication of Multilevel Diffractive Optical Elements	696
M L Ng, P R Herman, A H Nejadmalayeri, J Li	
Comparative Analysis of Microactuators Fabricated by Femtosecond and Nanosecond Laser Micromachining	700
E V Bordatchev, Y Lai, S K Nikumb	
Geometrical Profile of Material Surface Ablated with Highpower, Short-pulse Lasers in Ambient Gas Media.....	704
S R Vatsya, S K Nikumb	
Photochemical Writing of Silica Optical Waveguides in Silicone Rubber by F₂ Laser.....	708
M Okoshi, J Li, P R Herman, N Inoue	
Photochemical Welding of Silica Optical Components to Silicone Rubber by F₂ Laser.....	712
M Okoshi, J Li, P R Herman, N Inoue	
Effect of in Situ Annealing on Structure and Optical Properties of ZnTe Nanoparticles Produced by Pulsed Laser Ablation	716
Takaaki Orii, Makoto Hirasawa, Takafumi Seto	
Effect of Reactive Atmosphere on Pulsed Laser Deposition of Hydroxyapatite Thin Films	720
W Mroz, M Jedynski, J Hoffman, M Jelinek, B Major, A Prokopiuk, Z Szymanski	
Structural and Optical Properties of Phenylalanine and Tyrosine Thin Films Prepared by Pulsed Laser Deposition	724
M A Hernandez-Perez, C Garapon, C Champeaux, J C Orianges	
Ion Kinetic Energy Control in Cross-beam Pulsed Laser Ablation on Graphite Targets	728
C Sánchez Aké, H Sobral1, P Ramos-Alvarez, C Lemen, M Villagrán-Muniz	
Spectroscopic Study on Reaction Mechanism of Laser-ablated Silicon Ions and Neutrals with Benzene Molecules	732
M Saeki, H Ohba, A Yokoyama	
Ion Emission from Fused Silica Under 157-nm Irradiation.....	736
Sharon R John, J A Leraas, S C Langford, J T Dickinson	
UV Laser Drilling of SiC for Semiconductor Device Fabrication	740
Olaf Krüger, Gerd Schöne, Tim Wernicke, Wilfred John, Joachim Würfl, Günther Tränkle	
Radiation Trapping in LiF Ablation Plumes	745
S J Henley, S R P Silva, G M Fuge, M N R Ashfold	
Time-resolved Photoelasticity Imaging of Transient Stress Fields in Solids Induced by Intense Laser Pulses	749
Masanao Matsukura, Yoshiro Ito	
Langmuir Probe Investigation of Plasma Expansion in Femto-and Picosecond Laser Ablation of Selected Metals.....	753
P T Mannion, S Favre, C Mullan, D S Ivanov, G M O'Connor, T J Glynn, B Doggett, J G Lunney	

Development of Visualization System of Neutral Particles Generated from Laser-produced Plasma for an EUV Light Source	758
<i>Hiroki Tanaka, Atsushi Matsumoto, Akihiko Takahashi, Tatsuo Okada</i>	
Cluster Formation Through the Action of a Single Picosecond Laser Pulse.....	762
<i>N R Madsen, E G Gamaly, A V Rode, B Luther-Davies</i>	
Space- and Time-resolved Soft X-ray Absorption Spectroscopy of Aluminum Plasma Induced by Femtosecond-laser Ablation	769
<i>Yasuaki Okano, Katsuya Oguri, Tadashi Nishikawa, Hidetoshi Nakano</i>	
Nanosecond Spectroscopy of Expanding Laser-produced Tin Plasma	773
<i>B O'Shay, F Najmabadi, S S Harilal, M S Tillack</i>	

Author Index