



E-MRS Spring Meeting 2001  
June 5 - 8, 2001

## **SYMPOSIUM L**

Photon-Induced Surface Processing

### **Symposium Organizers:**

Anna Giardini, Università 'La Sapienza', Roma, Italy

José Gonzalo, CSIC, Madrid, Spain

Jacques Perrière, GPS, Université Paris VII, France

Tamàs Szörényi, Research Group on Laser Physics, Szeged, Hungary

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Istituto di Metodologie Inorganiche e dei Plasmi

Sezione Materiali Speciali



Papers will be published in Applied Surface Science

# E-MRS 2001 SPRING MEETING

## SYMPOSIUM L

Tuesday, June 5, 2001  
Mardi 5 juin 2001

Morning  
Matin

**Session I: Surface Processing I**  
**Session Chair: I.W. Boyd**

- L-I1** 9:00 Invited LASER PROCESSING AND CHEMISTRY: RECENT DEVELOPMENTS, **D. Bäuerle**, Angewandte Physik, Johannes-Kepler-Universität Linz, 4040 Linz, Austria
- L-I2** 9:30 TIME EVOLUTION OF THE REFLECTIVITY OF LIQUID Ge IN THE VICINITY OF THE LIQUID-VAPOR PHASE TRANSITION INDUCED BY NANOSECOND PULSED LASER IRRADIATION, **N. Chaoui**, J. Siegel, J. Solis, C.N. Afonso, Instituto de Optica, CSIC, C/ Serrano 121, 28006 Madrid, Spain
- L-I3** 9:45 BUBBLE NUCLEATION IN STEAM LASER CLEANING, **B.-U. Runge(a)**, V. Dobler(a), M. Mosbacher(a,b), H.-J. Münzer(a), J. Boneberg(a), P. Leiderer(a), (a)LS Leiderer, Fachbereich fuer Physik, Fach M676, Universitaet Konstanz, 78457 Konstanz, Germany, (b)Johannes Kepler Universitaet, Applied Physics Institute, Altenbergstrasse 69, 4040 Linz, Austria
- L-I4** 10:00 SURFACE TREATMENT OF SCREW SHAPED TITANIUM DENTAL IMPLANTS BY HIGH POWER LASER PULSES, **G. Peto**, A. Karacs, Z. Paszti, Research Institute for Technical Physics and Materials Science, P.O. Box 49, 1525 Budapest, Hungary, L. Guzzi, Department of Surface Chemistry and Catalysis, Institute of Isotopes and Surface Chemistry, P.O. Box 77, 1525 Budapest, Hungary, T. Divinyi, A. Joob, Department of Oral and Maxillofacial Surgery, Semmelweis University of Medicine, Maria u. 52, 1085 Budapest, Hungary
- L-I5** 10:15 SELF-ORGANIZED 3D STRUCTURES UNDER LASER EVAPORATION OF SOLIDS: FORMATION AND PROPERTIES, S.I. Dolgaev, A.V. Simakin, V.V. Voronov and **G.A. Shafeev**, General Physics Institute of the Russian Academy of Sciences, 38 Vavilov street, 117942 Moscow, Russian Federation
- 10:30 **BREAK**

**Session II: Surface Processing II**  
**Session Chair: M. Meunier**

- L-II.1** 11:00 Invited NOVEL APPLICATIONS FOR LASER ABLATION OF PHOTOPOLYMERS, **T. Lippert**, M. Hauer, C. David, A. Wokaun, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland, J. Robert, O. Nuyken, TU Munich, 84747 Garching, Germany, C. Phipps, Photonic Associates, 200A Ojo de la Vaca Road, Santa Fe, USA
- L-II.2** 11:30 SURFACE PROCESSING OF CROSSLINKED POLYTETRAFLUORO-ETHYLENE USING SYNCHROTRON RADIATION DIRECT PHOTO-ETCHING, T. Katoh, D. Yamaguchi, S. Ikeda, Y. Aoki, M. Washio and Y. Tabata Sumitomo Heavy Industries, Ltd., Waseda Univ., Raytech Corp., Tokyo Univ., Japan
- L-II.3** 11:45 MICROSTRUCTURING OF POLYMERS USING LIGHT-CONTROLLED MOLECULAR MIGRATION PROCESSES, C. Hubert, C. Fiorini, I. Maurin, J.M. Nunzi and P. Raimond, CEA Saclay, Batiment 451, DECS/SE2M/Organic Devices Group, 91191 Gif-Sur-Yvette Cedex, France
- L-II.4** 12:00 UV-ASSISTED MODIFICATION OF AROMATIC POLYMERS WITH GASEOUS HYDRAZINE: VARIATION OF THE REFRACTIVE INDEX, G. Langer(a), A. Ruplitsch(a), W. Kern(a), G. Hayn(a), R. Saf(a), K. Mahler(a), G. Jakopic(b), (a)Graz University of Technology, Institute for Chemical Technology of Organic Materials, Stremayrgasse 16, 8010 Graz, Austria, (b)Joanneum Research Institute for Nanostructured Materials and Photonics, Franz-Pichler-Strasse 30, 8160 Weiz, Austria
- L-II.5** 12:15 UV-LASER-ASSISTED SYNTHESIS OF IODINE DOPED ELECTRICAL CONDUCTIVE POLYTHIOPHENE, C. Wochnowski, S. Metev, G. Sepold, BIAS-Bremer Institute of Applied Beam Technology, Am Biologischen Garten 2, 28359 Bremen, Germany
- 12:30 **LUNCH**

**Tuesday, June 5, 2001**  
Mardi 5 juin 2001

**Afternoon**  
Après-Midi

**Session III: Ablation , Desorption, Deposition I**  
**Session Chair: R. Haglund**

- L-III.1** 14:00 Invited STUDYING BASIC MECHANISMS OF LIGHT INTERACTIONS WITH SOLIDS AT ATMOSPHERIC PRESSURE USING ICP-MS, **R.E. Russo**, X.L. Mao, H.C. Liu, Lawrence Berkeley National Laboratory, MS 70-193A, Berkeley, California 94720, USA and A. Mele, A. Giardini, M. Satta, Universita "La Sapienza, Piazzale A. Moro 5, 00185 Rome Italy
- L-III.2** 14:30 EXPERIMENTAL AND THEORETICAL ASPECTS OF KrF LASER INDUCED PLASMA DURING TITANIUM OXIDE ABLATION, **A. De Giacomo**(a), V.A. Shakatov(b), A. Casavola(a), G. Colonna(c), M. Capitelli, (a)Dip. Chimica, V. Orabona 4 Bari, Italy, (b)Centro Laser, St. Prov. Casamassima Km 3, (c)CSCP, Dip. Chimica, V. Orabona 4, Bari, Italy
- L-III.3** 14:45 LASER ABLATION MASS SPECTROMETRY: A TOOL TO INVESTIGATE MATTER TRANSFERT PROCESSES DURING PULSED-LASER DEPOSITION (PLD) EXPERIMENTS, **F. Aubriet**(b), N. Chaoui(c), R. Chety(a), B. Maunit(a), E. Millon(a) and J.F. Muller(a), (a)LSMCL, Université de Metz, 1 bd Arago, 57078 Metz cedex 3, France, (b)Present address: unité PCPM, Université Catholique de Louvain, 1 pl. Croix du Sud, 1348 Louvain-la-Neuve, Belgium, (c)Present address: Instituto de Optica, CSIC, C/serrano 121, 28006 Madrid, Spain
- L-III.4** 15:00 EXPANSION DYNAMICS OF A LASER ABLATION SILVER PLASMA IN A BACKGROUND GAS, **B. Thestrup**, J. Schou, OFD, Riso National Laboratory, 4000 Roskilde, Denmark, and T.N. Hansen, J.G. Lunney, Department of Physics, Trinity College, Dublin 2, Ireland
- L-III.5** 15:15 INVESTIGATION OF THE PULSED ULTRAVIOLET LASER ABLATION OF ZnO IN VACUUM AND IN A BACKGROUND GAS, **F. Claeysens**, A. Cheesman and M.N.R. Ashfold, School of Chemistry, University of Bristol, Cantock's Close, Bristol BS8 1TS, UK
- 15:30 **BREAK**

**Session IV: Deposition**  
**Session Chair: A. Giardini**

- L-IV.1** 16:00 Invited LOW TEMPERATURE GROWTH OF METAL OXIDE THIN FILMS USING MO COATING LASER PHOTOLYSIS PROCESS, **T. Tsuchiya**, A. Watanabe, H. Niino, A. Yabe, I. Yamaguchi, T. Manabe, T. Kumagai and S. Mizuta, NIMC, Tsukuba, Japan
- L-IV.2** 16:30 LASER ASSISTED GROWTH OF MOLYBDENUM RODS, **K.L. Björklund**, P.Heszler and M. Boman, Department of Materials Chemistry, The Ångström Laboratory, Uppsala University. BOX 538, 751 21 Uppsala, Sweden
- L-IV.3** 16:45 LASER INDUCED LOCAL CVD AND SIMULTANEOUS ETCHING OF TUNGSTEN, **Z. Tóth**, Research Group on Laser Physics of the Hungarian Academy of Sciences, Dóm tér 9., Szeged, Hungary, K. Pigmayer, Angewandte Physik, Johannes Kepler Universität Linz, 4040 Linz, Austria
- L-IV.4** 17:00 FORMATION OF STABLE ZIRCONIUM OXIDE ON SILICON BY PHOTO-ASSISTED SOL-GEL PROCESSING, **J.J. Yu**, J.-Y. Zhang and I.W. Boyd, Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L-IV.5** 17:15 REACTIVE SURFACE PROCESSING BY IRRADIATION WITH EXCIMER LASER, Nd:YAG LASER, FREE ELECTRON LASER AND Ti:SAPPHIRE LASER IN NITROGEN ATMOSPHERE, **P. Schaaf**, E. Carpene, M. Han, K.-P. Lieb, Universität Göttingen, Zweites Physikalisches Institut, Bunsenstrasse 7/9, 37073 Göttingen, Germany and M. Shinn, FEL Collaboration, Jefferson Lab, Newport News VA, USA
- 17:30 – 19:30 **Poster Session 1**

## Poster session 1

Session Chairs: T. Lippert, T. Tsuchiya, P. Heszler, R.E. Russo

- L/P1.01** LASER-ASSISTED DEPOSITION OF PD-DOPED DIAMOND LIKE FILMS FROM LIQUID HYDROCARBONS AND THEIR USE FOR GLASS METALLIZATION, A.V. Simakin, E.N. Loubnin, G.A. Shafeev, General Physics Institute of the Russian Academy of Sciences, 38, Vavilov street, 117942, Moscow, Russian Federation P. Doppelt Chimie Inorganique et CVD, ESPCI-CNRS 10 rue Vauquelin 75231, Paris Cedex 05, France
- L/P1.02** NICKEL DEPOSITION ON POROUS SILICON UTILIZING LASERS, K. Kordas(a), S. Leppävuori(a), J. Bekesi(b), L. Nanai(c), J. Remes(a), R. Vajtai(d), S. Szatmari(e), (a)Microelectronics and Materials Physics Laboratories and EMPART Research Group of Infotech Oulu, University of Oulu, PL 4500, 90570 Oulu, Finland, (b)Laser-Laboratorium Göttingen, 37077 Göttingen, Hans Adolf Krebs Weg 1, Germany, (c)Department of Physics, JGYTF, University of Szeged, Boldogasszony sgt. 6, 6720 Szeged, Hungary, (d)Department of Materials Science & Engineering Rensselaer Polytechnic Institute, 110 8th Street, Troy NY 12180-3590, USA, (e)Department of Experimental Physics, University of Szeged, Dom ter 9, 6720 Szeged, Hungary
- L/P1.03** X-RAY PHOTOELECTRON SPECTROSCOPY INVESTIGATION OF ULTRATHIN LAYERS GROWN BY ULTRAVIOLET-ASSISTED OXIDATION OF SiGe, V. Craciun, NILPRP, Laser Dept., Bucharest, Romania, E.S. Lambers and R.K. Singh, Materials Science and Engineering, University of Florida, Gainesville, USA, I.W. Boyd, Electronic and Electrical Engineering, University College London, London WC1E 7JE, UK
- L/P1.04** UV ANNEALING OF ULTRATHIN TANTALUM OXIDE FILMS, J.J. Yu, J.-Y. Zhang and I.W. Boyd, Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L/P1.05** CHARACTERISATION OF TiO<sub>2</sub> DEPOSITED BY PHOTO-INDUCED CHEMICAL VAPOUR DEPOSITION, N. Kaliwoh, J.-Y. Zhang and I.W. Boyd, Electronic and Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L/P1.06** (Ta<sub>2</sub>O<sub>5</sub>)<sub>1-x</sub>(TiO<sub>2</sub>)<sub>x</sub> DEPOSITED BY PHOTO-INDUCED CVD USING 222 NM EXCIMER LAMPS, N. Kaliwoh, J.-Y. Zhang and I.W. Boyd, Electronic and Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L/P1.07** UV CURING OF OPTICAL FIBRE COATINGS USING EXCIMER LAMPS, J.-Y. Zhang, G. Windall and I.W. Boyd, Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, United Kingdom
- L/P1.08** RAPID PHOTO-OXIDATION OF SILICON AT ROOM TEMPERATURE USING 126 NM VACUUM ULTRAVIOLET RADIATION, J.-Y. Zhang and I.W. Boyd, Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L/P1.09** CORRELATION BETWEEN PHOTOLUMINESCENCE IN THE GAS PHASE AND GROWTH KINETICS DURING LASER INDUCED CHEMICAL VAPOR DEPOSITION, S. Tamir, Israel Institute of Metals, Technion, Haifa, Israel, S. Speiser and N. Shakour, Department of Chemistry, Technion, Haifa, Israel
- L/P1.10** LASER-INDUCED HETEROGENEOUS PROCESSES AT DEPOSITION OF ELEMENTS FROM METALLORGANIC COMPOSITION VAPORS, S.A. Mulencko, Institute for Metal Physics NAS of Ukraine, 03142 Kiev-142, Ukraine
- L/P1.11** LASER CONTROL OF A SOLID STATE REACTION: PHOTOSTIMULATED DESORPTION FROM POTASSIUM BROMIDE, W. Hess, A. Joly, and K. Beck, Pacific Northwest National Laboratory, Richland WA, USA, D. Gerrity, Department of Chemistry, Reed College, Portland OR, USA, P. Sushko and A. Shluger, University College London, London, UK

- L/P1.12** A MECHANISM OF PHOTON STIMULATED DESORPTION OF Br and Br\* FROM KBr, P.V. Sushko and A.L. Shluger, Department of Physics and Astronomy, University College London, Gower Street, London WC1E 6BT, UK
- L/P1.13** COMPARISON OF CO<sub>2</sub>, Nd:YAG AND HIGH POWER DIODE LASERS FOR THE ABLATION OF TILE GROUT, K. Minami(a), J. Lawrence(a), L. Li(a), R.E. Edwards(b), A.W. Gale(b), (a)LPRC, Mechanical Engineering Department, UMIST, PO Box 88, M60 1QD Manchester, UK, (b)Civil & Structural Engineering Department, UMIST, PO Box 88, M60 1QD Manchester, UK
- L/P1.14** EFFECT OF PROCESSING GAS IN HIGH POWER DIODE LASER ABLATION OF TILE GROUT, K. Minami(a), J. Lawrence(a), L. Li(a), R.E. Edwards(b), A.W. Gale(b), (a)LPRC, Mechanical Engineering Department, UMIST, PO Box 88, M60 1QD Manchester, UK, (b)Civil & Structural Engineering Department, UMIST, PO Box 88, M60 1QD Manchester, UK
- L/P1.15** MECHANISM FOR THE ENHANCEMENT OF LASER INDUCED IRON OXIDE LAYER REMOVAL BY MEANS OF ELECTRO-CHEMICAL CONTROL, N. Chaoui, J. Solis, C.N. Afonso, Instituto de Optica, CSIC, Serrano 121, 28006 Madrid, Spain, P. Pasquet, R. Oltra, Laboratoire de Recherche sur la Reactivité des Solides, Université de Bourgogne, BP 47870, 21078 Dijon, France and S. Joiret, A. Hugot-Le Goff, Laboratoire de Physique des Liquides et Electrochimie, UPR 15 CNRS, Université P. et M. Curie, 75252 Paris, France
- L/P1.16** OPTICAL AND ACOUSTIC TECHNIQUES COMBNATION IN CLEANING PROCESS, G. Nicolas, A. Yanez, A. Ramil, M. Autric\*, Universidad de La Coruna, Escuela Politecnica Superior, C/Mendizabal s/n, 15403 Ferrol, Spain, \*Université d'Aix-Marseille 2, Marseille, France
- L/P1.17** LASER-INDUCED REMOVAL OF PLATE-LIKE PARTICLES FROM SOLID SURFACES, W.D. Song, Y.F.Lu, H.M. Hong and T.C. Chong, Laser Microprocessing Lab, Data Storage Institute, DSI Building, 5, Engineering Drive 1 (off kent Ridge Crescent, NUS), Singapore 117608
- L/P1.18** LASER-STIMULATED SURFACE RELIEF FORMATION ON AMORPHOUS NANOLAYERED STRUCTURES, V.Yu. Palyok, M.M. Shiplyak, Uzhhorod National University, Pidhirna Street 46, 88000 Uzhhorod, Ukraine and D.L. Beke, S.J. Kokenyesi, I.A. Szabo, Debrecen University, PO Box 2, 4010 Debrecen, Hungary
- L/P1.19** SURFACE MODIFICATION OF OPC BASED CEMENT USING A FREQUENCY DOUBLED ND:YAG LASER SYSTEM, M.J.J. Schmidt, L. Li, Laser Processing Research Centre (LPRC), Department of Mechanical Engineering, University of Manchester, Institute of Science and Technology (UMIST), PO Box 88, Manchester M60 1QD, UK
- L/P1.20** EXCIMER LASER TREATMENT OF PET PRIOR METALLIZATION: INVESTIGATIONS OF THE CHEMICAL CHANGES ON THE PET SURFACE AND AT THE PET-AI INTERFACE, S. Petit(a), P. Laurens(a), H. Ardelean(b), P. Marcus(b), J. Amouroux(c), F. Arefi-Khonsari(c), (a)CLFA, 16 bis av. prieur de la Côte d'or, 94114 Arcueil cedex, France, (b)Laboratoire de Physico-chimie des Surfaces, ENSCP, 11 rue P. et M. Curie, 75231 Paris cedex, France, (c)Laboratoire de Genie des procedes et traitements de surface, ENSCP, 11 rue P. et M. Curie, 75231 Paris cedex, France
- L/P1.21** KRF-LASER ABLATION OF POLYMERS IN TRANSPARENT LIQUIDS, K. Zimmer, A. Braun Institut für Oberflächenmodifizierung e.V., Permoserstr. 15, 04318 Leipzig, Germany
- L/P1.22** LASER ABLATION OF A B4C - POLYSILOXANE COMPOSITE, M.J.J. Schmidt, D.K.Y. Low, L. Li, Laser Processing Research Centre (LPRC), Department of Mechanical Engineering, University of Manchester Institute of Science and Technology (UMIST), PO Box 88, Manchester M60 1QD, UK

- L/P1.23** COMPARATIVE TENSILE STRENGTH STUDY OF THE ADHESION IMPROVEMENT OF POLYTETRAFLUOROETHYLENE BY PHOTON ASSISTED SURFACE PROCESSING, B. Hopp, Research Group on Laser Physics of the Hungarian Academy of Sciences, Dom ter 9., 6720 Szeged, Hungary, Zs. Geretovszky, Department of Optics and Quantum Electronics, Dom ter 9., 6720 Szeged, Hungary, I.W. Boyd, Department of Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L/P1.24** PHOTODEGRADATION OF POLYCARBONATE UNDER NARROW BAND IRRADIATION AT 172 NM, Zs. Geretovszky, Department of Optics & Quantum Electronics, Dom ter 9., 6720 Szeged, Hungary, B. Hopp, Research Group on Laser Physics of the Hungarian Academy of Sciences, Dom ter 9., 6720 Szeged, Hungary, I.W. Boyd, Department of Electronics & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L/P1.25** EXCIMER LASER PROCESSING OF SILICON RUBBER: THE CHALLENGE, C. Dicara, K. Kolev, J.C. Hornez, L.D. Laude, Université de Mons-Hainaut, Service de Physique de l'Etat Solide, 23 avenue Maistriau, 7000 Mons, Belgium
- L/P1.26** DESIGN OF PHOTOINDUCED RELIEF OPTICAL DEVICES WITH HYBRID SOL-GEL MATERIALS, O. Soppera, C. Croutxé - Barghorn, C. Carré, Département de Photochimie Générale, E.N.S.C., 3 rue A. Werner, 68093 Mulhouse Cedex, France, and D. Blanc, Laboratoire TSI Faculté des Sciences et Techniques, 23 rue du Dr. P. Michelon, 42023 Saint-Etienne Cedex 2, France
- L/P1.27** VISCOSITY OF TRANSIENT MELT LAYER ON POLYMER SURFACE UNDER CONDITIONS OF KRF LASER ABLATION, F. Weisbuch, V.N. Tokarev, S. Lazare, LPCM UMR 5803, Université de Bordeaux 1, 351 cours de la Liberation, 33405 Talence, France, D. Debarre IEF UMR 8622, Université Paris XI, 91405 Orsay, France
- L/P1.28** KINETICS OF TEFLON FEP ETCHING IN VACUUM BY LIGHT 147 NM, V.E. Skurat, Institute of Energy Problems of Chemical Physics, Russian Academy of Sciences, 38 Leninsky prospect, Moscow 117829, Russia and A.P. Nikiforov, Central Aerohydrodynamic Institute (TsAGI), Zhukovskij, Moscow region, Russia
- L/P1.29** SPECTRAL AND DEPTH DISTRIBUTIONS OF ABSORBED DOSE IN PHOTOLYSIS OF POLYMERS BY VACUUM UV RADIATION FROM VARIOUS SOURCES, V.E. Skurat and P.V. Samsonov, Institute of Energy Problems of Chemical Physics, Russian Academy of Sciences, 38, Leninsky prospect, Moscow, 117829, Russia
- L/P1.30** LASER-INDUCED ABLATION OF POLYMERS UNDER UV AND IR IRRADIATION, V.S. Burakov, A.F. Bokhonov, M.I. Nedel'ko, and N.V. Tarasenko, Institute of Molecular and Atomic Physics National Academy of Sciences of Belarus, 70 Scaryna Ave., 220072 Minsk, Belarus
- L/P1.31** LASER-INDUCED EXPLOSIVE BOILING DURING NANOSECOND LASER ABLATION OF SILICON, V. Craciun, D. Craciun, NILPRP, Laser Dept., Bucharest, Romania, J. Hermann, C. Boulmer-Leborgne, GREMI, Université d'Orleans, Orleans, France, R.K. Singh, Materials Science and Engineering, University of Florida, Gainesville, USA
- L/P1.32** MELT MOTION AND FIBRE EJECTION IN THE LASER VAPORISATION OF FUSED QUARTZ, G.A.J. Markillie, F.J. Villarreal, K. Gulia, H.J. Baker, D.R. Hall, Physics Department, Heriot-Watt University, Riccarton, Edinburgh EH14 4AS, UK
- L/P1.33** ELECTRON TEMPERATURES AND DENSITIES IN A LASER ABLATION PLUME, B. Toftmann, J. Schou, OFD, Riso National Laboratory, 4000 Roskilde, Denmark and T.N. Hansen, J.G. Lunney, Department of Physics, Trinity College, Dublin 2, Ireland
- L/P1.34** COMPARISON OF LASER ABLATION OF Al<sub>2</sub>O<sub>3</sub> CERAMICS USING FUNDAMENTAL AND 2ND HARMONIC ND: YAG LASER RADIATION, M.J.J. Schmidt, L. Li, Laser Processing Research Centre (LPRC), Department of Mechanical Engineering, University of Manchester Institute of Science and Technology (UMIST), PO Box 88, Manchester M60 1QD, UK

- L/P1.35** SPATIAL SEPARATION OF FAST AND SLOW COMPONENTS OF PULSED LASER PLUMES, B. Hopp, Z. Tóth, Research Group on Laser Physics of the Hungarian Academy of Sciences, Dóm tér 9, Szeged, Hungary, T. Smausz, N. Kresz, Cs. Vass, F. Ignácz, Department of Optics and Quantum Electronics, Dóm tér 9, Szeged, Hungary
- L/P1.36** ANALYSIS OF CHARGED FRAGMENTS EMITTED DURING EXCIMER LASER ABLATION OF  $\text{YnI}_2\text{B}_2\text{C}$  BOROCARBIDE TARGETS BY TIME-OF-FLIGHT MASS SPECTROMETRY, S. Amoruso, X. Wang, M. Armenante, R. Bruzzese, R. Velotta, Istituto Nazionale per la Fisica della Materia, Unità di Napoli, Via Cintia 26, 85126 Napoli, Italy
- L/P1.37** OPTICAL CHARACTERIZATION OF REACTIVE PULSED LASER ABLATION OF OXIDE THIN FILMS IN RF PLASMA, A. Giardini, V. Marotta, and S. Orlando, CNR-IMS, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy
- L/P1.38** OPTICAL CHARACTERIZATION OF REACTIVE PULSED LASER ABLATION OF NITRIDE THIN FILMS IN RF PLASMA, A. Giardini, V. Marotta, and S. Orlando, CNR-IMS, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy
- L/P1.39** MASS ANALYSIS AND PHOTOELECTRON SPECTROSCOPY OF ANIONS PRODUCED BY LASER ABLATION, T. Di Palma(a), R.E. Continetti(b), A. Paladini(c), M. Satta(c), D. Scuderi(c), A. Giardini Guidoni(a,c), (a)CNR-Istituto Materiali Speciali, 85050 Tito Scalo (Pz), Italy, (b)Departement of Chemistry and Biochemistry, University of California, San Diego, 9500 Gilman Drive, La Jolla CA92093-0314, USA, (c)Dipartimento di Chimica, Università di Roma 'La Sapienza', pl. A. Moro 5, 00185 Roma, Italy
- L/P1.40** LASER ABLATION OF  $\text{Al}_2\text{O}_3\text{-TiC}$  IN VACUUM: A SPECTROSCOPIC INVESTIGATION, V. Oliveira(a), J.-C. Orlianges(b), A. Catherinot(b), O. Conde(c), R. Vilar(a), (a) Instituto Superior Tecnico, Lisboa, Portugal, (b)Faculte des Sciences, Limoges, France, (c)Faculdade de Ciências, Lisboa, Portugal
- L/P1.41** THREE-DIMENSIONAL NUMBER DENSITY MAPPING OF ATOMS AND MOLECULES DURING PULSED-LASER ABLATION USING LASER-INDUCED FLUORESCENCE- AND ABSORPTION-SPECTROSCOPY, C. Dutouquet and J. Hermann GREMI UMR 6606, CNRS/Orleans University, P.O. Box 6759, 45067 Orleans Cedex 2, France
- L/P1.42** LASER ABLATION AND STATIC SECONDARY ION MASS SPECTROMETRY CAPABILITIES IN THE CHARACTERIZATION OF INORGANIC MATERIALS, F. Aubriet(a,b), C. Poleunis(a), N. Chaoui\*(b), B. Maunit(b), E. Millon(b), J.F. Muller(b) and P. Bertrand(a), (a)Unité PCPM, Université Catholique de Louvain, 1 Croix du Sud, 1348 Louvain-la-Neuve, Belgium, (b) LSMCL, Université de Metz, 1 bd Arago, 57078 Metz cedex 3, France, \*Present address: Instituto de Optica, CSIC, C/serrano 121, 28006 Madrid, Spain
- L/P1.43** THERMODYNAMICAL, SPECTROSCOPIC CHARACTERIZATION AND LASER ABLATION OF AN  $\text{Al-Cu-Fe}$  ALLOY AND A QUASICRYSTAL OF THE SAME COMPOSITION, M. Satta(b), A. Giardini(b,c), A. Mele(b), K.L. Mao(a), S.S. Mao(a), R.E. Russo(a), (a)Lawrence Berkeley National Laboratory Berkeley, CA 94720, USA, (b)Dipartimento di Chimica, Università "La Sapienza", Piazzale A. Moro 5, 00185 Rome, Italy, (c)Istituto Materiali Speciali, CNR, Via Loja, Tito Scalo (PZ) 85050, Italy
- L/P1.44** DETERMINATION OF KINETIC ENERGY OF ATOMIC CARBON DURING LASER ABLATION OF GRAPHITE IN NITROGEN ATMOSPHERE BY TIME- AND SPACE-RESOLVED EMISSION SPECTROSCOPY, S. Acquaviva and M.L. De Giorgi, I.N.F.M. and Università di Lecce, Dipartimento di Fisica, P.O. Box 193, 73100 Lecce, Italy
- L/P1.45** PULSED LASER ABLATION OF  $\text{MoSi}_2$ : GAS PHASE ANALYSIS, A.Giardini(a,b), T.M. Di Palma(b), D. Ferro(c), A. Santagata(d), R. Teghil(d), (a)Dipartimento di Chimica, Università 'La Sapienza', P.le A. Moro 5, 00185 Roma, Italy, (b)CNR Istituto Materiali Speciali, Area Industriale Tito Scalo, 85050 Tito Scalo (PZ) Italy, (c)CNR Centro Studi di Termodinamica Chimica per le Alte Temperature, Dipartimento di Chimica, Università 'La Sapienza', P.le A. Moro 5, 00185 Roma, Italy, (d)Dipartimento di Chimica, Università della Basilicata, Via N. Sauro 85, 85100 Potenza, Italy

- L/P1.46** REACTIVITY OF PHOTOABLATED TRANSITION METALS WITH AMMONIA AND PRODUCT-ANALYSIS IN SUPERSONIC BEAM, M. Satta(a), T. Di Palma(b), A. Paladini(a), D. Scuderi(a), A. Giardini Guidoni(a), (a)Department of Chemistry, 'La Sapienza', P.Le A. Moro 5, 00185, Rome, Italy, (b)CNR Istituto Materiali Speciali, Via S. Loja 16, 85100 Tito Scalo PZ, Italy
- L/P1.47** PULSED LASER ABLATION OF SOLID METAL - AMINO AND AMINOPHOSPHONIC ACIDS MIXTURES: ROLE OF METALS IN THE GAS PHASE COMPLEXES PRODUCTION, A. Paladini, C. Calcagni, M. Satta, A. Lagana, A. Giardini, M. Speranza, Dept. of Chemistry, Rome University 'La Sapienza', pl. A. Moro 5, 00185 Rome, Italy and T.M. Di Palma, CNR-Istituto Materiali Speciali, 85050 Tito Scalo (Pz), Italy
- L/P1.48** ACOUSTIC DETECTION OF ANODIC OXIDE LAYER REMOVAL FROM ALUMINIUM WITH NANOSECOND LASER PULSES, A. Cortona, J. Krüger, W. Kautek, Laboratory for Thin Film Technology, Federal Institute for Materials Research and Testing, Unter den Eichen 87, 12205 Berlin, Germany and P. Meja, M. Autric, Institute for Research on Non Equilibrium Phenomena, case 903, 163, Av. du Luminy, 13009 Marseille, France
- L/P1.49** ACOUSTIC EMISSION IN LASER IRRADIATED SEMICONDUCTOR CRYSTALS, P. Kosoboutski, A. Danylov, O. Prokopchuk, Department of Physics, National University Lvivska Polytechnika, 12 Bandery Str., 79646 Lviv, Ukraine

**Wednesday, June 6, 2001**  
Mercredi 6 juin 2001

**Afternoon**  
Après-Midi

**Session V: Ultrashort Phenomena I**  
**Session Chair: P.E. Dyer**

- L-V.1** 14:00 Invited HIGHLY NONLINEAR INTERACTIONS USING FEMTOSECOND LASER PULSES, **J. Etchepare**, O. Albert, P. Balcou, J.P. Chambaret, G. Grillon, A. Rousse and D. Hulin, LOA, UMR7639 ENSTA, Centre de l'Yvette, Palaiseau, 91761 Palaiseau, France
- L-V.2** 14:30 FEMTOSECOND TIME-RESOLVED PHOTOSTIMULATED DESORPTION FROM IONIC CRYSTALS, **A. Joly**, W. Hess and K. Beck, Pacific Northwest National Laboratory, Richland WA, USA, J.T. Dickinson, Department of Physics, Washington State University, Pullman WA, USA, P. Sushko and A. Shluger, University College London, London, UK
- L-V.3** 14:45 HIGH ASPECT RATIO PROCESSING WITH ADVANCED PHOTON SOURCE: ULTRAFAST LASER VS SYNCHROTRON RADIATION, **Y. Zhang**, A. Endo, Sumitomo Heavy Industries Ltd., Tanashi, Tokyo 188-8585, Japan and M. Lowe, P. Hannaford, E. Harvey, Swinburne University, Hawthorn, Vic 3122, Australia
- L-V.4** 15:00 ABLATION THRESHOLDS OF PURE METALS WITH FEMTOSECOND LASER PULSES, **A.F. Semerok**, CEA Saclay, DPE/SPCP/ LsLA, 91191 Gif-sur-Yvette, France, M. Hashida, Institute for Laser Technology, 2-6 Yamada-oka, 565-0041 Osaka, Japan, G. Petite, Ecole Polytechnique, DSM/DRECAM/LSI, 91128 Palaiseau, France
- L-V.5** 15:15 MODIFICATION OF DIELECTRIC SURFACES WITH ULTRA SHORT LASER PULSES, M. Henyk, **F. Costache**, J. Reif, LS Experimentalphysik II, BTU Cottbus, Universitätsplatz 3-4, 03044 Cottbus, Germany
- 15:30 **BREAK**

**Session VI: Pulsed Laser Deposition I**  
**Session Chair: J. Gonzalo**

- L-VI1** 16:00 Invited NANOSECOND AND FEMTOSECOND PULSED LASER ABLATION DEPOSITION OF QUASICRYSTALS, **R. Teghil**, Dipartimento di Chimica, Universita della Basilicata, via N. Sauro 85, 85100 Potenza, Italy, D.J. Sordelet, Department of Material Science & Engineering, Ames Laboratory, Iowa State University, Ames, IA, USA
- L-VI2** 16:30 EVIDENCE OF INTERGROWTH IN SrBi<sub>2</sub>Nb<sub>2</sub>O<sub>9</sub> (SBN) THIN FILMS GROWN BY PLD ON (100)SrTiO<sub>3</sub> IN RELATION WITH THE COMPOSITION, J-R. Duclère, M. Guilloux-Viry, A. Perrin, LCSIM, UMR 6511 CNRS/Universite de Rennes 1, Institut de Chimie de Rennes, Campus de Beaulieu, 35042 Rennes, France, J.Y. Laval, A. Dubon, LPS, UPR 005 CNRS, ESPCI, 10 rue Vauquelin, 75231 Paris Cedex 05, France
- L-VI3** 16:45 YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> / La<sub>0.67</sub>Ca<sub>0.33</sub>MnO<sub>3</sub> SUPERLATTICES SHOWING SIMULTANEOUSLY SUPERCONDUCTING AND FERROMAGNETIC ORDERING PHENOMENA, H.-U. Habermeier and G. Cristiani, Max Planck Institut FKF, Stuttgart, Germany
- L-VI4** 17:00 PULSED LASER DEPOSITION OF EPITAXIAL BUFFER LAYERS ON LiNbO<sub>3</sub>, E. Sanchez, N. Domingo, M.V. Garcia-Cuenca, C. Guerrero, C. Ferrater, and M. Varela Universitat de Barcelona, Departament de Fisica Aplicada i Optica, Avda. Diagonal 647, Barcelona 08028, Spain
- L-VI5** 17:15 GROWTH OF Y<sub>2</sub>O<sub>3</sub> THIN FILMS BY PULSED LASER DEPOSITION FROM METALLIC TARGETS, Ph. Lecoeur, M.B. Korzenski and B. Mercey Laboratoire CRISMAT, UMR 6508, ISMRA et Universite de Caen, France, P. Camy and J.L. Doualan CIRIL, Laboratoire mixte CEA/CNRS, ISMRA Caen, France
- 17:30 – 19:30 **Poster Session 2**

## Poster session 2

### Session Chairs: J. Etchepare, J. Solis, R. Teghil

- L/P2.01** FEMTOSECOND PULSE LASER ABLATION OF ANODIC OXIDE COATINGS ON ALUMINIUM ALLOYS WITH ON-LINE ACOUSTIC OBSERVATION, J. Krüger, W. Kautek, Laboratory for Thin Film Technology, Federal Institute for Materials Research and Testing, Unter den Eichen 87, 12205 Berlin, Germany and P. Meja, M. Autric, Institute for Research on Non Equilibrium Phenomena, case 903, 163, Av. du Luminy, 13009 Marseille, France
- L/P2.02** MECHANISMS OF PICOSECOND LASER ABLATION IN SILICON: THE MOLECULAR-DYNAMICS THERMAL-ANNEALING MODEL, P. Lorazo(a), L.J. Lewis(b), M. Meunier(a), (a)Departement de Genie Physique et de Genie des Materiaux et Groupe de Recherche en Physique et Technologie des Couches Minces (GCM), Ecole Polytechnique de Montreal, Case Postale 6079, Succursale Centre-Ville, Montreal, H3C 3A7, Quebec, Canada, (b)Departement de Physique et Groupe de Recherche en Physique et Technologie des Couches Minces (GCM), Université de Montreal, Case Postale 6128, Succursale Centre-Ville, Montreal, H3C 3J7 Quebec, Canada
- L/P2.03** SAFETY FOR APPLICATIONS OF FEMTOSECOND-LASER-TECHNOLOGY ("SAFEST") - A NEW JOINT PROJECT, W. Kautek, Laboratory for Thin Film Technology, Federal Institute for Materials Research and Testing, Unter den Eichen 87, 12205 Berlin, Germany, M. Goede, Laser Zentrum Hannover e.V., Hollerithallee 8; 30419 Hannover, Germany, A. Fiedler, Rupp+Hubrach Inferoptics / Laserschutz GmbH, Laubanger 18, 96052 Bamberg, Germany, E. Heberer, Gehör-, Lärm- und Arbeitsschutz GmbH, Ottostr. 7, 63150 Heusenstamm, Germany, A. Stingl, C. Spielmann, Femtolasers Produktions GmbH, Floragasse 7/620, 1040 Wien, Austria, M.Brose, Berufsgenossenschaft Feinmechanik und Elektrotechnik, Gustav-Heinemann-Ufer 130, 50968 Köln, Germany, G. Grabner, Landesklinik für Augenheilkunde und Optometrie, Müllner Hauptstrasse 48, 5020 Salzburg, Austria
- L/P2.04** DYNAMICS OF FEMTOSECOND PULSED LASER ABLATION OF BULK SEMICONDUCTORS, W. Marine, A. Bulgakov, I. Ozerov and M. Sentis, Groupement Interdisciplinaire Ablation Laser et Applications, UMR CNRS 6631 et FRE CNRS 2165, Faculté des Sciences de Luminy, Case 901, Marseille, France
- L/P2.05** FEMTOSECOND LASER ABLATION FROM SODIUM CHLORIDE AND BARIUM FLUORIDE, M. Henyk, F. Costache, J. Reif, LS Experimentalphysik II, BTU Cottbus, Universitätsplatz 3-4, 03044 Cottbus, Germany
- L/P2.06** ANALYTICAL ASPECTS OF FEMTOSECOND LASER ABLATION, A.F. Semerok, CEA Saclay, DPE/SPCP/ LsLA, 91191 Gif-sur-Yvette, France
- L/P2.07** FEMTOSECOND PULSED LASER DEPOSITION OF OXIDE AND METALLIC THIN FILMS, E. Millon(a), O. Albert(b), J.C. Loulergue(b), J. Etchepare(b), J. Perrière(c), (a) LSMCL, Université de Metz, 1 bd Arago, 57078 Metz cedex 3, France, (b)Laboratoire d'Optique Appliquée, CNRS, ENSTA, Ecole Polytechnique, 91761 Palaiseau cedex, France, (c)GPS, UMR7588, Universités de Paris VI et VII, 2 pl. Jussieu, 75251 Paris cedex 5, France
- L/P2.08** IN-SITU MONITORING OF OPTICAL CHARACTERISTICS OF PULSED PICOSECOND LASER-IRRADIATED DIAMOND-LIKE CARBON THIN FILMS USING AN OPTICAL PARAMETRIC GENERATOR AND AMPLIFIER, L. Carrion, D. Vouagner, J.P. Girardeau-Montaut, Laboratoire de Sciences et Ingénierie des Surfaces (EA 1877), Université Claude Bernard (Lyon 1), 43 bd du 11 Novembre 1918, 69622 Villeurbanne cedex, France
- L/P2.09** PERIODIC STRUCTURE FORMATION AT FEMTOSECOND LASER BEAM INTERACTION WITH METAL SURFACES, A.F. Semerok, CEA Saclay, DPE/SPCP/ LsLA, 91191 Gif-sur-Yvette, France, A.M. Dikhne, Troitsk Institute of Innovational and Thermonuclear Studies, 142092 Troitsk, Moscow Region, Russia, G. Petite, Ecole Polytechnique, DSM/DRECAM/LSI, 91128 Palaiseau, France

- L/P2.10** TRANSPORT PROPERTIES OF PULSED LASER DEPOSITED  $\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$  THIN FILMS, M. C. Terzoli(a), D. Rubi(a), S. Duhalde(a) and M. Villafuerte(b), (a)Departamento de Fisica, Facultad de Ingenieria, UBA Paseo Colon 850, 1063 Buenos Aires, Argentina, (b)Lab. Fisica del Solido, Universidad Nacional de Tucuman, Av. Independencia 1800, 4000 Tucuman, Argentina
- L/P2.11** THICKNESS AND ORIENTATION EFFECT ON THE MICROWAVE PROPERTY OF YBCO THIN FILMS GROWN BY PULSED LASER DEPOSITION, Chang Hoi Hur, Kyoung Bo Han and Sang Yeol Lee, Department of Electrical and Electronic Engineering, Yonsei University, 134 Shinchondong, Seodaemunku, Seoul, 120-749, Korea
- L/P2.12** COMBINED LASER-MAGNETIC FIELD TREATMENT OF  $\text{SrFe}_{12}\text{O}_{19}$  THIN FILMS GROWN BY PULSED LASER DEPOSITION, M. Koleva, R.I. Tomov, P. Atanasov, Ch.G. Ghelev, O.I. Vankov, N.I. Mihailov, Institute of Electronics, Bulgarian Academy of Sciences, Tsarigradsko shose 72, Sofia 1784, Bulgaria and J. Lanchok, M. Jelinek, Institute of Physics, Czech Academy of Sciences, Na Slovance 2, 182 21 Prague 8, Czech Republic
- L/P2.13** EFFECT OF FE DOPING ON MAGNETIC PROPERTIES OF PULSED-LASER-DEPOSITION GROWN LA-SR-MN-O THIN FILMS, W. Zhang(a,b), X. Wang(c), and I.W. Boyd(a), (a) Department of Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK, (b)Structure Research Laboratory, University of Science and Technology of China, Hefei, Anhui 230026, P.R. China, (c)School of Electrical Engineering and Information, South Bank University, 109 Borough Road, London SE1 6UH, UK
- L/P2.14** OPTICAL PROPERTIES, ELEMENT COMPOSITION, AND DEPOSITION PARAMETERS OF  $\text{Nd:KGW}$  THIN FILMS PREPARED BY PULSED LASER DEPOSITION, P.A. Atanasov, Institute of Electronics, BAS, Tsarigradsko Shose 72, Sofia 1784, Bulgaria, A.F. Perea, M. Jimenez de Castro, C.N. Afonso, J. Gonzalo, Instituto de Optica, CSIC, Serrano 121, 28006 Madrid, Spain and J. Perriere Groupe de Physique des Solides, Universites Paris VII et VI, URA 17, Tour 23, Place Jussieu, 75251 Paris, Cedex 05, France
- L/P2.15** STRUCTURE-PROPERTIES RELATIONSHIP OF RE DOPED  $\text{Y}_2\text{O}_3$  WAVEGUIDES GROWN BY PULSED LASER DEPOSITION, O. Pons Y Moll(a), D. Defourneau(a), R.M. Defourneau(a), W. Seiler(b), E. Antic(c) B. Viana(c), (a)GPS, Univ Paris VII, Tour 23, 2 pl. Jussieu, 75251 Paris, France, (b)L3M, ENSAM, 151 bd de l'Hôpital, 75013 Paris, France, (c)LCAES, ENSCP, 11 rue P. et M. Curie, 75231 Paris, France
- L/P2.16** EUROPIUM DOPED ALUMINA WAVEGUIDES PREPARED BY PLD, A. Minardi, C. Garapon, LPCML, CNRS-Universite Lyon I, 10rue Ampère, 69622 Villeurbanne, France, C. Champeaux, J.C. Orliangef, A. Catherinot, LPCTS, CNRS-Universite Limoges, 123 av. Albert Thomas, 87060 Limoges, France
- L/P2.17** WAVEGUIDING LAYERS OF  $\text{GdCOB}$  GROWN BY PULSED-LASER DEPOSITION, A. Roemer(a), A. Essahlaoui(b), R. Chety(a), A. Boudrioua(b), E. Millon(a), J.C. Louergue(b) and J. Perrière(c), (a) LSMCL, Université de Metz, 1 bd Arago, 57078 Metz cedex 3, France, (b)LMOPS, Université de Metz et Supélec, 2 rue E. Belin, 57078 Metz cedex 3, France, (c)GPS, UMR7588, Universités de Paris VI et VII, 2 pl. Jussieu, 75251 Paris cedex 5, France
- L/P2.18** PULSED LASER DEPOSITED BARIUM STRONTIUM TITANATE THIN FILMS, S. Liebus, F. Cosset, C. Girault-Di Bin, A. Celerier, J-C. Vareille, Laboratoire IRCOM (CNRS, UMR 6615), Equipe Capteurs Microelectroniques et Microoptiques, 123 avenue Albert Thomas, 87060 Limoges Cedex, France
- L/P2.19** DEPOSITION AND CHARACTERIZATION OF  $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$  THIN FILMS BY PULSED LASER DEPOSITION, N. Lémée, J.L. Dellis, M. El Marssi, M.G. Karkut, LPMC, Université de Picardie Jules Verne, 33 rue Saint Leu, 80039 Amiens, France, L. Dupont, LRCS, Université de Picardie Jules Verne, 33 rue Saint Leu, 80039 Amiens, France
- L/P2.20** P-n JUNCTION DIODE COMPOSED OF n-ZnO/p-Zn-DOPED InP, Eun Sub Shim, Hong Seong Kang, Jong Hoon Kim and Sang Yeol Lee, Department of Electrical and Electronic Engineering, Yonsei University, 134 Shinchondong, Seodaemunku, Seoul, 120-749, Korea

- L/P2.21** EFFECT OF THE VARIATION OF FILM THICKNESS ON THE STRUCTURAL AND OPTICAL PROPERTIES OF ZnO THIN FILMS DEPOSITED ON SAPPHIRE SUBSTRATE USING PLD, Eun Sub Shim, Hong Seong Kang, Jong Hun Kim and Sang Yeol Lee, Department of Electrical and Electronic Engineering, Yonsei University, 134 Shinchondong, Seodaemunku, Seoul, 120-749, Korea
- L/P2.22** PULSED LASER DEPOSITION OF Y<sub>2</sub>O<sub>3</sub> THIN FILMS ON MgO, R.J. Gaboriaud, F. Pailloux, J. Perriere\*, Laboratoire de Métallurgie Physique-UMR 6630 CNRS SP2MI, téléport 2, BP30179, 86962 Chasseneuil-Futuroscope cedex, France, \*GPS, Université Paris VII, 2 place Jussieu, 75251 Paris cedex 05, France
- L/P2.23** MECHANICAL PROPERTIES IMPROVEMENT OF PLD HYDROXYAPATITE THIN FILMS BY ION-BEAM IMPLANTATION, V. Nelea, C. Ristoscu, I. N. Mihailescu, NILPRP, P.O. Box MG-36, RO-76900, Bucharest, Romania, H. Pelletier, P. Mille, A. Cornet, ENSAIS, 24, Bld. de la Victoire, 67084, Strasbourg, France
- L/P2.24** PULSED LASER DEPOSITED NICKEL OXIDE THIN FILMS AS ELECTROCHROMIC ANODIC MATERIALS, I. Bouessay, A. Rougier, B. Beaudoin and J.B. Leriche, LRCS, 33 rue St Leu, 80039 Amiens, France
- L/P2.25** GROWTH OF HYDROXYAPATITE THIN FILMS BY IN SITU ASSISTED ULTRAVIOLET PULSED LASER DEPOSITION (UVPLD), V. Nelea, V. Craciun, I. N. Mihailescu, NILPRP, P.O. Box MG-36, 76900, Bucharest, Romania, H. Pelletier, P. Mille, A. Cornet, ENSAIS, 24, Bld. de la Victoire, 67084, Strasbourg, France
- L/P2.26** REACTIVE LASER DEPOSITION OF VANADIUM NITRIDE THIN FILM, S E. D'Anna, M. Fernandez, G. Leggieri, A. Luches I.N.F.M. and Università di Lecce, Dipartimento di Fisica, 73100 Lecce, Italy. G. Majni, P. Mengucci I.N.F.M. and Università di Ancona, Dipartimento di Scienze dei Materiali e della Terra, 60131 Ancona, Italy. L. Nanai University of Szeged, Department of Physics, 6720 Szeged, Hungary
- L/P2.27** LANTHANIDE CARBIDES PULSED LASER ABLATION: GASEOUS PHASE AND FILMS CHARACTERISATION, L. D'Alessio, A. Santagata, R. Teghil, Dipartimento di Chimica, Università di Basilicata, via N. Sauro 85, 85100 Potenza, Italy, D. Ferro, Centro per la Termodinamica Chimica alle Alte Temperature CNR, P.le A. Moro 5, 00185 Roma, Italy, V. Marotta, Istituto Materiali Speciali CNR, via s. Loja, Tito Scalo, Italy, G. De Maria, Dipartimento di Chimica, Università 'La Sapienza', P.le A. Moro 5, 00185 Roma, Italy
- L/P2.28** MORPHOLOGY AND COMPOSITION OF ArF EXCIMER LASER DEPOSITED CARBON NITRIDE FILMS AS DETERMINED BY ANALYTICAL TEM, O. Geszti, G. Radnoczi, Research Institute for Technical Physics and Materials Science, P.O. Box 49, 1525 Budapest, Hungary, I. Bertoti, Chemical Research Center of the Hungarian Academy of Sciences, P.O. Box 17, 1525 Budapest, Hungary, T. Szörenyi, F. Antoni, E. Fogarassy, CNRS-PHASE, BP 20, 67037 Strasbourg Cedex 2, France
- L/P2.29** CHARACTERIZATION OF REACTIVE LASER ABLATION DEPOSITED InN THIN FILMS, R. Morjan(a), A. Perrone(b), A. Zocco(b), M. Dinescu(a), (a)IFA, National Institute of Lasers, Plasma and Radiation Physics, Bucharest, Romania, (b)University of Lecce, Physics Dept., Lecce, Italy
- L/P2.30** OPTICAL AND THERMAL CHARACTERIZATION OF AlN THIN FILMS DEPOSITED BY PULSED LASER DEPOSITION, A. Dauscher(a), B. Lenoir(a), A. Jacquot(a), H. Scherrer(a), P. Verardi(b), F. Craciun(b), M. Stolzer(c), M. Dinescu(d), (a)LPM, UMR CNRS-INPL-UHP 7556, Ecole des Mines, Nancy, France, (b)Institute of Acoustics "O.M. Corbino", CNR, Rome, Italy, (c)Martin Luther Universität Halle-Wittenberg, Halle, Germany, (d)IFA, NILPRP, Lasers Dept., Bucharest, Romania
- L/P2.31** DEFECTS OF CRYSTAL STRUCTURE Hg<sub>1-x</sub>Cd<sub>x</sub>Te THIN LAYERS GROWING BY PLD, I.O. Rudyj, M.S. Fruginskij, I.V. Kurilo, State University "Lviv Polytechnic", Bandera 12, 290646 Lviv, Ukraine, I.S. Virt, Section of Experimental Physics, Pedagogical University, Franco 24, 82-100 Drogobych, Ukraine, P. Sagan, J. Zawislak, M. Kuzma, Institute of Physics, Higher Pedagogical School, Rejtana 16A, 35-310 Rzeszow, Poland

- L/P2.32** TEMPERATURE DEPENDENT GROWTH OF PULSED LASER DEPOSITED BiFILMS ON BaF<sub>2</sub>(111), A. Dauscher, A. Jacquot, B. Lenoir, Laboratoire de Physique des Matériaux, UMR CNRS-INPL-UHP 7556, Ecole des Mines, Parc de Saurupt, 54042 Nancy, France
- L/P2.33** PHASE SEGREGATION AND HIGH MAGNETORESISTANCE IN AS-DEPOSITED CO-AG FILMS GROWN BY PULSED LASER DEPOSITION, W. Zhang(a,b), X. Wang(c), and I.W. Boyd(a), (a)Department of Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK, (b) Structure Research Laboratory, University of Science and Technology of China, Hefei, Anhui 230026, P.R. China, (c) School of Electrical Engineering and Information, South Bank University, 109 Borough Road, London SE1 6UH, UK
- L/P2.34** STRUCTURAL AND OPTICAL PROPERTIES OF PULSED LASER DEPOSITED ZnSe FILMS, G. Perna, V. Capozzi, Dipartimento di Fisica dell'Università di Bari and Istituto Nazionale per la Fisica della Materia, Via Amendola 173, 70126 Bari, Italy, V. Marotta, S. Orlando, A. Giardini, C.N.R.-Istituto per i Materiali Speciali, Zona Industriale, 85050 Tito Scalo (PZ), Italy
- L/P2.35** EFFECTS OF STRUCTURAL DISORDER ON THE OPTICAL AND VIBRATIONAL PROPERTIES OF CdS<sub>x</sub>Se<sub>1-x</sub> ALLOY THIN FILMS DEPOSITED BY LASER ABLATION, V. Capozzi, G. Perna Dipartimento di Fisica dell' Università di Bari and Istituto Nazionale per la Fisica della Materia Via Amendola 173, 70126 Bari, Italy, S. Pagliara, L. Sangaletti, Istituto Nazionale per la Fisica della Materia and Dipartimento di Matematica e Fisica, Università Cattolica, Via dei Musei 41, 25121 Brescia, Italy, L.E. Depero, Istituto Nazionale per la Fisica della Materia and Dipartimento di Meccanica, Università di Brescia, Via Branze 38, 25123 Brescia, Italy
- L/P2.36** PULSED LASER DEPOSITION OF CdMnTe THIN FILMS AND CdTe/CdMnTe QUANTUM WELL STRUCTURES, A.I. Savchuk, Ye.O. Kandyba, Dept. of Phys.Electronics, Chernivtsi National University , 58012 Chernivtsi, Ukraine, A. Perrone, A. Luches, M.L. DeGiorgi, Dept.of Physics, University of Lecce, National Institute of Matter Physics, 73100 Lecce, Italy I.D. Stolyarchuk, Dept. of Theoretical Physics, Pedagogical University of Drogobych, 82100, Drogobych, Ukraine and P.I. Nikitin, General Physics Institute, 117942 Moscow, Russian Federation
- L/P2.37** REACTIVE PULSED LASER ABLATION AND DEPOSITION OF THIN FILMS IN RF PLASMAS, A. Giardini, V. Marotta, and S. Orlando, CNR-IMS, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy
- L/P2.38** PLASMA ASSISTED PULSED LASER DEPOSITION FOR THE IMPROVEMENT OF THE FILM GROWTH PROCESS, A. De Giacomo (a,b), V. A. Shakhmatov(c), G.S. Senesi(c) and O. De Pascale(c), (a)Dipartimento di Chimica, University of Bari, Via Orabona 4, Bari, Italy, (b)Centro di studio per la chimica dei plasmi del CNR, Via Orabona 4, Bari, Italy, (c)Centro Laser, S.P. per Casamassima, km.3-70010 Valenzano (Bari), Italy
- L/P2.39** ZINC OXIDE THIN FILMS PRODUCED BY REACTIVE PULSED LASER ABLATION AND DEPOSITION IN RF PLASMA, A. Giardini, V. Marotta, and S. Orlando, CNR-IMS, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy
- L/P2.40** REACTIVE PULSED LASER ABLATION AND DEPOSITION OF METAL OXIDE THIN FILMS IN RF PLASMA, A. Giardini, V. Marotta, S. Orlando, and G.P. Parisi, CNR-IMS, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy

Thursday, June 7, 2001  
Jeudi 7 juin 2001

Morning  
Matin

**Session VII: Surface Processing III (joint session symposium C & L)**  
**Session Chair: T. Szörényi**

- L-VII.1** 08:30 PREDICTION OF TEMPERATURE EVOLUTION ON METALS DURING LASER HARDENING PROCESS, A. Yanez, G. Nicolas, E. Saavedra, C. Alvarez, A.J. Lopez, J.A. Perez, A. Ramil, Universidad de La Coruna, Escuela Politecnica Superior, C/Mendizabal s/n, 15403 Ferrol, Spain
- L-VII.2** 08:50 SPECTROSCOPIC CHARACTERIZATION OF DLC FILMS DEPOSITED ON POLYCARBONATE BY PULSED LASER ABLATION, M. Bonelli, A. Miotello, P. Mosaner, INFN and Dipartimento di Fisica, Universita di Trento, 38050 Povo (Trento), Italy and C. Casiraghi, P.M. Ossj, INFN and Dipartimento di Ingegneria Nucleare, Politecnico di Milano, Via Ponzio 33/4, 20133 Milano, Italy
- L-VII.3** 09:10 LATERAL DISTRIBUTION OF THE SILICIDE PHASES FORMED DURING VISIBLE AND UV PULSED LASER PROCESSING OF THE Ti/Si(001) INTERFACE STUDIED BY XPS MICROSCOPY WITH SYNCHROTRON RADIATION, R. Larciprete(a,b), M. Danailov(a), A. Barinov(a), L. Casalis(a), L. Gregoratti(a) and M. Kiskinova(a), (a)Sincrotrone Trieste, S.S. 14, Km.163,5, 34012 Basovizza (TS), (b)ENEA, Div. Fisica Applicata, via E. Fermi 45, 00044 Frascati (RM), Italy
- L-VII.4** 9:30 MODELING OF THE HIGH POWER LASER INTERACTION WITH THE HVOF SPRAYED FeCr-TiC COMPOSITE, L. Pawlowski, I. Smurov, Ecole Nationale Supérieure de Chimie de Lille, PO Box 108, 59652 Villeneuve d'Ascq, France
- L-VII.5** 9:50 STRUCTURAL AND ELECTRICAL PROPERTIES OF TANTALUM OXIDE FILMS GROWN BY PHOTO-INDUCED PULSED LASER DEPOSITION, J.-Y. Zhang and I.W. Boyd, Electronic & Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, UK
- L-VII.6** 10:10 AN XPS STUDY OF PULSED LASER DEPOSITED CN<sub>x</sub> FILMS, F. Le Normand(a), J. Hommet(a), T. Szörényi(2,3), C. Fuchs(b), E. Fogarassy(b), (a)IPCMS, UMR 7504 CNRS, BP 20, 67037 Strasbourg Cedex 2, France, (b)CNRS-PHASE, UPR 292 CNRS, BP 20, 67037 Strasbourg Cedex 2, France, (c)Research Group on Laser Physics, 6701, Po Box 406, Szeged, Hungary
- 10:30 **BREAK**

**Session VIII: Pulsed Laser Deposition II**  
**Session Chair: E. Millon**

- L-VIII.1** 11:00 Invited PROCESSING OF NON-LINEAR OPTICAL POLYMERS AND ORGANIC THIN FILMS BY THE MATRIX ASSISTED PULSED LASER EVAPORATION (MAPLE) TECHNIQUE, **A. Pique**, P. Wu, B.R. Ringelsen, D.M. Bubb, J.S. Melinger, R.A. McGill and D.B. Chrisey Naval Research Laboratory, Washington DC 20375, USA
- L-VIII.2** 11:30 INFLUENCE OF THE GROWTH CONDITIONS OF ALN FILMS BY LASER ABLATION, **A. Basillais**, C. Boulmer-Leborgne, GREMI, Université d'Orléans, BP6744, 45067 Orléans cedex 2 France
- L-VIII.3** 11:45 AMORPHOUS CARBON DEPOSITED BY PULSED LASER ABLATION AS MATERIAL FOR COLD CATHODE FLAT EMITTERS, **R. Angelucci**, S. Nicoletti, R. Rizzoli, A. Migliori, CNR LAMEL - Institute, via Gobetti 101, 40129 Bologna, Italy, G. Conte, S. Salvatori, INFM Dip. Ing. Elettronica, via della Vasca Navale 84, 00146 Roma, Italy
- L-VIII.4** 12:00 REMOTE PLASMA ASSISTED PULSED LASER DEPOSITION OF  $CN_x$  AND GaN THIN FILMS, **M. Tabbal**, Dept. of Physics, American University of Beirut, Beirut, Lebanon; P. Mérel, M. Chaker and H. Pépin, INRS-Énergie et Matériaux, Varennes, PQ, Canada
- L-VIII.5** 12:15 LASER INDUCED REACTIVE EPITAXY OF BINARY AND TERNARY GROUP III-NITRIDE HETEROSTRUCTURES, **T. Rupp**, G. Henn and H. Schröder, German Aerospace Research Center, Institute of Technical Physics, 70569 Stuttgart, Germany
- 12:30 **LUNCH**

**Thursday, June 7, 2001**  
Jeudi 7 juin 2001

**Afternoon**  
Après-midi

**Session IX: Ultrashort Phenomena II**  
**Session Chair: V. Craciun**

- L-IX.1** 14:00 Invited ULTRASHORT LASER PULSE INDUCED TRANSFORMATIONS IN THIN FILMS VIEWED IN NANO- TO FEMTO-SECOND TIME SCALES, **J. Solis**, Instituto de Optica, CSIC, Serrano 121, 28006 Madrid, Spain
- L-IX.2** 14:30 DOUBLE-PEAK DISTRIBUTION OF ELECTRON AND ION EMISSION PROFILE DURING FEMTOSECOND LASER ABLATION OF METALS, **S. Amoruso**, X. Wang, C. Altucci, C. de Lisio, M. Armenante, R. Bruzzese, R. Velotta, Istituto Nazionale per la Fisica della Materia - Unità di Napoli, Via Cintia 26, 85126 Napoli, Italy
- L-IX.3** 14:45 FEMTOSECOND LASER ABLATION : DYNAMICS MEASUREMENT OF PLASMA EXPANSION, **O. Albert**, J.C. Loulergue, J. Etchepare, Laboratoire d'Optique Appliquee, CNRS, ENSTA, Ecole Polytechnique, 91761 Palaiseau cedex France, E. Millon, LSMCL, Universite de Metz, 57078 Metz cedex 3, France and E. Le Menn, C. Boulmer-Leborgne, GREMI, Universite d'Orleans, 45067 Orleans cedex 2, France
- L-IX.4** 15:00 FEMTOSECOND LASER ABLATION OF DIELECTRICS : MEASUREMENT AND MODELISATION OF HOLES PROFILES, **S. Guizard**, CEA-Laboratoire des Solides Irradiés and Laboratoire CELIA, Universite Bordeaux I, France
- L-IX.5** 15:15 LASER ABLATION OF Ni BY ULTRASHORT PULSES: MOLECULAR DYNAMIC SIMULATION, **P.A. Atanasov**, N.N. Nedialkov, S.E. Imamova, Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko Shosee, Sofia 1784, Bulgaria and H.Hügel, F. Dausinger, A. Ruf, Universität Stuttgart, Institut für Strahlwerkzeuge, 43 Pfaffenwaldring, Stuttgart 70569, Germany
- 15:30 **BREAK**

**Session X: Ablation, Etching, Curing, Nanoparticle Formation**  
**Session Chair: A. Luches**

- L-X.1** 16:00 Invited EMISSION SPECTROSCOPY AND SIZE DISTRIBUTION OF GAS-PHASE NANOPARTICLES GENERATED BY LASER-BASED METHODS, **P. Heszler**, Department of Materials Chemistry, Ångström Laboratory, Uppsala University, Box 538, 751 21 Uppsala, Sweden
- L-X.2** 16:30 NANOPARTICLES PRODUCED BY LASER ABLATION OF SOLIDS IN LIQUID ENVIRONMENT, S.I. Dolgaev, A.V. Simakin, V.V. Voronov, and G.A. Shafeev, General Physics Institute of the Russian Academy of Sciences, 38 Vavilov street, 117942 Moscow, Russian Federation, **F. Bozon-Verduraz**, LCMDC, Université Paris 7 (Denis Diderot), 2 place Jussieu, 75251 Paris cedex 05, France
- L-X.3** 16:45 ETCHING OF FUSED SILICA BY LASER ABLATION OF ORGANIC COMPOUND SOLUTION WITH XeCl EXCIMER LASER, **A. Yabe**, H. Niino, and Y. Yasui, National Institute of Materials and Chemical Research, Tsukuba, 305-8565, Japan
- L-X.4** 17:00 LASER MICROFABRICATION OF TRANSPARENT HARD MATERIALS AND ITS SIGNAL DIAGNOSTICS, **M.H. Hong**, Y.F. Lu and T.C. Chong, Data Storage Institute, DSI Building, 5, Engineering Drive 1, (off Kent Ridge Crescent, NUS), Singapore 117608
- L-X.5** 17:15 SYNTHESIS OF FE-SI NANOPARTICLE BY CW.CO<sub>2</sub> LASER ASSISTED PYROLYSIS FROM GASEOUS PRECURSORS, L. de Dominicis, S. Martelli, F. Rinaldi, ENEA-Frascati, Div. Applied Physics 00044 Frascati (Rome), Italy, R. Giorgi, ENEA-Casaccia, Div. New Materials, 00100 Rome, Italy, S. Veintemillas-Verdaguer, O. Bomati-Miguel, Instituto de Ciencia de Materiales de Madrid, CSIC Cantoblanco, 28049 Madrid, Spain
- 17:30 – 19:30 **Poster Session 3**

## Poster session 3

### Session Chair: A. Pique, M. O'Neill, W. Kautek

- L/P3.01** LASER NITRIDING OF ALUMINUM AND IRON, E. Carpena and P. Schaaf, Universität Göttingen, II. Physikalisches Institut, Bunsenstrasse 7/9, 37073 Göttingen, Germany
- L/P3.02** SURFACE CEMENTATION OF ALUMINUM ALLOYS BY EXCIMER LASER INDUCED PLASMA, F. Fariaut, C. Boulmer-Leborgne GREMI, UMR 6606 CNRS, Université d'Orléans, BP 6744, 45067 Orléans Cedex 2, France
- L/P3.03** NH<sub>3</sub> REACTIVITY INDUCED BY LASER ON Si: CHARACTERIZED BY LASER MPI MASS SPECTROMETRY, T. Gontheiz, T. Gibert, P. Brault, GREMI, Université d'Orléans, BP6744, 45067
- L/P3.04** SURFACE LASER TREATMENT FOR CORROSION PREVENTION, C. Georges, N. Semmar, C. Boulmer-Leborgne, GREMI, Université d'Orléans, BP6744, 45067 Orléans cedex 2, France and C. Perrin, D. Simon CERI-CNRS, 3A rue de la Férellerie, 45071 Orléans cedex 2, France
- L/P3.05** LASER MODIFICATION OF METAL COATINGS SPRAYED BY ARC-PLASMA JET, R. Enikov(a), E. Pavlov(a), D. Oliver(a), G. Danev(b), J. Pirov(b), J. Ihlemann(c), (a)Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko Chaussee Blvd., 1784 Sofia, Bulgaria, (b)Central Laboratory of Photoprocesses, Bulgarian Academy of Sciences, bldg. 109, Acad. G. Bonchev Str., 1113 Sofia, Bulgaria, (c)Laser-Laboratorium Goettingen e.V., Hans-Adolf-Krebs-Weg 1, 37077 Goettingen, Germany
- L/P3.06** SEM AND XPS SURFACE ANALYSIS OF EXCIMER LASER TREATED WC,CO CUTTING TOOL SUBSTRATES, E. Cappelli(a), S. Orlando(b), F. Gnecco(c), (a)CNR-IMAI, P.O.B. 10, 00016 Monterotondo Scalo, Roma, Italy, (b)CNR-IMS, P.O.B. 27, 85050 Tito Scalo, Potenza, Italy, (c)CNR-ICMM, via de Marini 6, 1614 Genova, Italy
- L/P3.07** SINTERED ALUMINA PHASE TRANSFORMATIONS UNDER EXCIMER-LASER IRRADIATION, C. Dupas-Bruzek, L.D. Laude, K. Kolev, Laboratoire de Physique de l'Etat Solide, Université de Mons-Hainaut, 23 avenue Maistriau, 7000 Mons, Belgium
- L/P3.08** PHASE TRANSFORMATION IN (Mg,Fe)<sub>2</sub>SiO<sub>4</sub> OLIVINE UNDER EXCIMER-LASER IRRADIATION, C. Dupas-Bruzek, L.D. Laude, C. Dicara, Laboratoire de Physique de l'Etat Solide, Université de Mons-Hainaut, 23 avenue Maistriau, 7000 Mons, Belgium
- L/P3.09** SURFACE MODIFICATION OF TITANIUM BY PULSED ND:YAG LASER IRRADIATION, E. György\*, A. Perez del Pino, P. Serra, J.L. Morenza Universitat de Barcelona, Departament de Fisica Aplicada i Optica, Av. Diagonal 647, 08028 Barcelona, Spain \*On leave from Institute of Atomic Physics, P.O. Box MG 54, Bucharest V 76900, Romania
- L/P3.10** CRACK-FREE SURFACE SEALING OF CERAMIC THERMAL BARRIER COATING USING AN EXCIEMR LASER, Z. Liu, Corrosion and Protection Centre, UMIST, Manchester, UK
- L/P3.11** SURFACE TREATMENT OF ALUMINA-BASED CERAMICS USING A COMBINATION OF TWO OPTICAL SOURCES, D. Triantafyllidis, L. Li and F.H. Stott, UMIST, Mechanical Engineering, Laser Processing Research Center, Manchester, UK
- L/P3.12** CHARACTERIZATION OF TITANIUM OXIDES FILMS WITH MAGNELI STRUCTURE ELABORATED BY A SOL-GEL ROUTE, C. Langlade, B. Vannes, STMS Dept., IfoS lab, Ecole Centrale de Lyon, BP 136, 69131 Ecully, France
- L/P3.13** EARLY STAGE OF THE LASER INDUCED OXIDATION OF TITANIUM SUBSTRATES, L. Lavisse, D. Grevey, LTm lab, IUT du Creusot, 71200 Le Creusot, France, C. Langlade, B. Vannes, STMS Dpt, IfoS lab, Ecole Centrale de Lyon, BP 136, 69131 Ecully, France
- L/P3.14** COMPARISON OF ACOUSTIC EMISSION CHARACTERISTICS IN CO<sub>2</sub> AND ND:YAG LASER WELDING PROCESSES, L. Li, S. Calvert, UMIST, LPRC, Mechanical Engineering, Manchester, UK

- L/P3.15** REPEATABILITY CHARACTERISTICS OF LASER PERCUSSION DRILLING OF STAINLESS STEEL SHEETS, Gary K.L. Ng and L. Li, UMIST, LPRC, Mechanical Engineering, Mancheser, UK
- L/P3.16** BACKSIDE ETCHING OF UV-TRANSPARENT MATERIALS AT THE INTERFACE TO LIQUIDS R. Böhme, A. Braun, K. Zimmer, Institut für Oberflächenmodifizierung e.V., Permoserstr. 15, 04318 Leipzig, Germany
- L/P3.17** DETERMINATION OF THE REFRACTIVE INDEX OF HOLOGRAPHIC GRATINGS IN POROUS Si, S. Setzu\*, R. Romestain, V. Chamard, Laboratoire de Spectrometrie Physique, Universite de Grenoble 1, BP.87, 38402 Saint Martin d'Herès, France, \*also: Dipartimento di Fisica, INFN sezione di Cagliari, Citt. Universitaria, 09042 Monserrato (CA), Italy
- L/P3.18** FABRICATION OF POROUS SILICON WITH STRONG VISIBLE PHOTOLUMINESCENCE BY CO<sub>2</sub> LASER INDUCED AIR OPTICAL BREAKDOWN PROCESSING OF Si SURFACES, A.V. Kabashin and M. Meunier, Ecole Polytechnique de Montreal, Departement de Genie Physique, Case Postale 6079, succ. Centre-ville, Montreal (Quebec) H3C 3A7, Canada
- L/P3.19** PULSED 157 nm VUV INDUCED REFRACTIVE INDEX MODIFICATION OF OPTICAL FIBRES AND PLANAR FUSED SILICA, P.E. Dyer, A-M. Johnson, H.V. Snelling, C.D. Walton, Department of Physics, University of Hull, Hull HU6 7RX, UK
- L/P3.20** PHOTO-EXCITED PROCESSES IN SILICA GLASS AND THEM APPLICATIONS, I.Kh. Abdukadirova, Institute of Nuclear Physics Academy of Sciences Uzbekistan, 702132 Tashkent, Ulugbek, Uzbekistan
- L/P3.21** SUB-100 nm STRUCTURES BY LASER ANNEALING, G. Kerrien, J. Boulmer, D. Débarre, I.E.F., Université Paris Sud, Bat 220, 91405 Orsay, France
- L/P3.22** FORMATION OF  $\beta$ -FeSi<sub>2</sub> BY EXCIMER LASER IRRADITON OF Fe/Si BI-LAYERS, S. Wagner, P. Schaaf, E. Carpenè, Universität Göttingen, Zweites Physikalisches Institut, Bunsenstrasse 7/9,
- L/P3.23** PHOTOELECTRIC WORK FUNCTION AND AQUANTUM EFFICIENCY MEASUREMENTS ON DIAMOND FILMS, D. Vouagner(a), Y. Show(b), J.P. Girardeau-Montaut(a), (a)Laboratoire de Sciences et Ingénierie des Surfaces (EA 1877), Université Claude Bernard (Lyon 1), 43 bd du 11 Novembre 1918, 69622 Villeurbanne cedex, France, (b)Department of Electronics, Tokai University, 1117 Kitakaname, Hiratsuka, Kanagawa, Japan
- L/P3.24** PHOTO-STIMULATED DIFFUSION MECHANISMS OF DEFECTS ON THE SURFACE OF NON-METAL SOLID STATES, N.N. Turaeva, B.L. Oksengendler, S.Sh. Roshidova, Institute of Polymer Chemistry and Physics, Kadiry str. 7B, 700128 Tashkent, Uzbekistan
- L/P3.25** PHOTOTHERMAL OPTIMIZATION OF COEFFICIENT TEMPERATURE RESISTANCE OF Co-Ti-Si THIN FILMS, M. Knite, Technical Physics Institute, Riga Technical University, 14 Azenes str., Riga 1048, Latvia and L. Shebanovs, Institute of Solid State Physics, University of Latvia, 8 Kengaraga str., Riga 1063, Latvia
- L/P3.26** CHARACTERISTICS of BARRIER STRUCTURES In/CdTe MODULATED by INCOHERENT LIGHT ILLUMINATION, G. Khlyap, State Pedagogical University, 24 Franko str., Drogobych, 82100, Ukraine
- L/P3.27** PHOTO-LITHOGRAPHY FOR 2D OPTICAL MICROSTRUCTURES IN POROUS SILICON. APPLICATION TO NUCLEATION OF MACROPORES, S. Setzu(a,c), G. Lerondel(b), P. Ferrand(a), R. Romestain(a), (a)Laboratoire de Spectrometrie Physique, Universite Joseph Fourier - CNRS (UMR 5588), B.P. 87, 38402 St Martin d'HÈres cedex, France, (b)Univ. de Technologie de Troyes, 12 rue Marie Curie, BP 2060, 10010 Troyes cedex, France, (c)also: INFN, Sezione di Cagliari, Dipartimento di Fisica, Citt. Universitaria, 09042 Monserrato (CA), Italy
- L/P3.28** CONTROLLABLE PERIODIC STRUCTURES ON SILICON WAFER BY CO<sub>2</sub> LASER IRRADIATION, Wang Weijie, Lu Yong Feng, An Chenwu, Hong Minghui, Data Storage Institute,

DSI Building 5, Engineering Drive 1 (Off Kent Ridge Crescent, National University of Singapore) 117608, Singapore

- L/P3.29** FABRICATION OF PHOTONIC STRUCTURES BY MEANS OF INTERFERENCE LITHOGRAPHY AND REACTIVE ION ETCHING, I. Mikulskas, R. Tomasiunas, Vilnius University, Sauletekio 10, 2040 Vilnius, Lithuania, V. Grigaliunas, V. Kopustinskas, S. Meskinis, Institute of Physical Electronics, Savanoriu 271, 3009 Kaunas, Lithuania
- L/P3.30** DETERMINATION OF THE ABSORPTION LENGTH OF CO<sub>2</sub>, Nd:YAG AND HIGH POWER DIODE LASER RADIATION FOR SELECTED GROUTING MATERIALS, J. Lawrence(a), K. Minami(a), L. Li(a), R.E. Edwards(b) and A.W. Gale(c) (a)Laser Processing Research Centre, Manufacturing Division, Department of Mechanical Engineering, University of Manchester Institute of Science and Technology (UMIST), Manchester M60 1QD, UK, (b)Department of Building Engineering, University of Manchester Institute of Science and Technology (UMIST), Manchester M60 1QD, UK, (c) Department of Civil and Construction Engineering, University of Manchester Institute of Science and Technology (UMIST), Manchester M60 1QD, UK
- L/P3.31** EMISSION SPECTROSCOPY OF CARBON-COVERED IRON NANOPARTICLES IN DIFFERENT GAS ATMOSPHERES, K. Elihn, L. Landström and P. Heszler, Department of Materials Chemistry, The Ångström Laboratory, Uppsala University, Box 538, 751 21 Uppsala, Sweden
- L/P3.32** PHOTOINDUCED HOPPING CONDUCTIVITY IN PHOTOREFRACTIVE Bi<sub>12</sub> SiO<sub>20</sub> AND Bi<sub>12</sub> GeO<sub>20</sub> SINGLE CRYSTALS, Sh.M. Efendiev, Azerbaijan Technical University, G. Javid Prosp 25, 370602 Baku, Azerbaijan and V.E. Bagiev, Baku State University, Z. Khalilov Str. 23, 370145 Baku, Azerbaijan
- L/P3.33** XANES AND UV INVESTIGATIONS OF ELECTRON BAND STRUCTURE OF PHOTOREFRACTIVE Bi<sub>12</sub> XO<sub>20</sub> (X = Si, Ge, Ti) CRYSTALS, Sh.M. Efendiev, Azerbaijan Technical University, G. Javid Prosp 25, 370602 Baku, Azerbaijan and V.E. Bagiev, Baku State University, Z. Khalilov Str. 23, 370145 Baku, Azerbaijan
- L/P3.34** EXCITONS AND TRAPPING OF ELECTRONS AND HOLES AT THE DEFECTIVE MgO (001) SURFACE, P.V. Sushko and A.L. Shluger, Department of Physics and Astronomy, University College London, Gower Street, London WC1E 6BT, UK
- L/P3.35** LASER SOLID PHASE DOPANT IMPLANTATION INTO SEMICONDUCTORS, A.Yu. Bonchik, Z. Yu. Gotra, S.G. Kiyak, I.A. Mohyliak, W. Proszak, I.P. Trostynskyy, Institute for Applied Problems of Mechanics and Mathematics of NASU, 3-b Naukova Street, 79601 Lviv, Ukraine
- L/P3.36** LASER CRYSTALLIZATION OF POLY SIGE FOR MICROBOLOMETERS, F. Fabbri, L. Fornarini, S. Martelli, F. Rinaldi, Enea-Frascati, Frascati, Italy, S. Chiussi, C. Serra\*, N. Banerji, B. León, Dpto. Física Aplicada, E.T.S.I.I. University of Vigo, Lagoas Marcosende 9, 36200 Vigo, Spain; \*C.A.C.T.I., University of Vigo, 36200 Vigo, Spain

**Friday, June 8, 2001**  
Vendredi 8 juin 2001

**Morning**  
Matin

**Session XI:           Towards Industrial Applications**  
**Session Chair:       E. Fogarassy**

- L-XL1**    8:30   Invited   ULTRASHORT LASER PULSES TOWARDS INDUSTRIAL APPLICATIONS, **W. Kautek**, J. Krüger, P. Rudolph, M. Lenzner, S. Baudach, Laboratorium für Dünnschichttechnologien, Bundesanstalt für Materialforschung und -prüfung, Unter den Eichen 87, 12205 Berlin, Germany, P. Abel, T. v. Woedtke, BCS Bio- und Chemosensoren GmbH, Brandteichstr. 19, 17489 Greifswald, Germany, D. Pfeiffer, Bio Sensor Technologie, Buchholzer Str. 55-61, 13156 Berlin, Germany, T. Boeck, K. Schmidt, Institut für Kristallzüchtung, Rudower Chaussee 6, 12489 Berlin, Germany, P. Kurze, AHC-Oberflächentechnik GmbH & Co. OHG, Boelckestraße 25 - 57, 50171 Kerpen, Germany
- L-XL2**    9:00           LASER DIRECT WRITING OF MESOSCOPIC MATERIAL PATTERNS, **D.B. Chrisey**, R. Modi, B.R. Ringeisen, H.D. Wu, H.D. Young, R.C.Y. Auyeung, S. Lakeou and A. Pique, Naval Research Laboratory, Washington DC, USA
- L-XL3**    9:15           EXCIMER LASER ANNEALING OF A-SI FOR AMLCD APPLICATION: CHARACTERISTICS AND ASSETS OF SAELC SYSTEM, **C. Prat**, D. Zahorski, M. Stehle, SOPRA, 26 Rue Pierre Joigneaux, 92270 Bois Colombes, France
- L-XL4**    9:30           ULTRA-SHALLOW JUNCTIONS BY GILD FOR ULTIMATE CMOS, **G. Kerrien**, J. Boulmer, D. Débarre, I.E.F., Université Paris Sud, Bat 220, 91405 Orsay, France, and A. Grouillet, D. Lenoble, France Telecom R&D, 28 chemin du Vieux-Chêne, BP 98, 38243 Meylan, France
- L-XL5**    9:45           A NOVEL LASER TRIMMING TECHNIQUE FOR MICROELECTRONICS, **M. Meunier**, M. Cadotte and Y. Savaria, Ecole Polytechnique de Montreal, C.P. 6079, Succ. Centre-ville, Montreal (Quebec), H3C 3A7, Canada, A. Lacourse and Y. Gagnon, LTRIM-Technologies, 440 Blvd Armand Frappier, suite 140, Laval, Quebec, H7V 4B4, Canada
- 10:00           **BREAK**

**Session XII: Pulsed Laser Deposition III**  
**Session Chair: D.B. Chrisey**

- L-XII.1** 10:30 Invited PULSED LASER DEPOSITION OF SMALL MOLECULES FOR ORGANIC ELECTROLUMINESCENCE, S.R. Farrar, A.E.A. Contoret, **M. O'Neill**, J.E. Nicholls, Department of Physics, University of Hull, Hull HU6 7RX, UK, A.J. Eastwood and S.M. Kelly, Department of Chemistry, University of Hull, Hull HU6 7RX, UK
- L-XII.1** 11:00 PULSED LASER DEPOSITION OF POLYMER FILMS BY RESONANT VIBRATIONAL ABLATION\*, **R.F. Haglund, Jr.**, M.R. Papantonakis, Vanderbilt University, Nashville TN 37235, USA and D.M. Bubb, J.A. Horwitz, Naval Research Laboratory, Washington DC 20375, USA  
\*Research supported in part by the Office of Naval Research, Vanderbilt University and the United States Department of Energy
- L-XII.3** 11:15 RF-PLASMA ASSISTED PULSED LASER DEPOSITION OF CARBON FILMS FROM GRAPHITE TARGET, E. Cappelli(a), **S. Orlando**(b), G. Mattei(a), G. Merli(c) and P. Ascarelli(a), (a)CNR-IMAI, P.O.B. 10, 00016 Monterotondo Scalo, Roma, Italy, (b)CNR-IMS, P.O.B. 27, 85050 Tito Scalo, Potenza, Italy, (c)CNR-LAMEI, via Pietro Gobetti 101, 40129 Bologna, Italy
- L-XII.4** 11:30 ELECTROCHROMIC BASED TUNGSTEN OXIDE THIN FILMS GROWN BY PULSED LASER DEPOSITION, **A. Rougier**, A. Blyr and J.B. Leriche, LRCS, 33 rue St Leu, 80039 Amiens, France
- L-XII.5** 11:45 TRANSPORT OF THE ABLATED MATERIAL THROUGH A WATER VAPOR ATMOSPHERE IN PULSED LASER DEPOSITION OF HYDROXILAPATITE, **J.L. Arias**, M.B. Mayor, J. Pou, B. Leon and M. Perez-Amor, Departamento de Fisica Aplicada, Universidade de Vigo, Lagoas-Marcosende 9, 36200 Vigo, Spain
- L-XII.6** 12:00 EXPLORING THE DEPOSITION OF OXIDES ON SILICON FOR PHOTOVOLTAIC CELLS BY PULSED LASER DEPOSITION, **L.M. Doeswijk**, H. Rogalla, D.H.A. Blank, Mesa+ Research Institute, Dept. of Applied Physics, University of Twente, P.O.Box 217, 7500 AE Enschede, The Netherlands and H.H.C. de Moor, ECN Solar Energy, P.O.Box 1, 1755 ZG Petten, The Netherlands
- L-XII.7** 12:15 PULSED LASER DEPOSITION ON LARGE AREA OF HTc THIN FILMS, **A. Morone** and U. Gambardella, CNR-Istituto per i Materiali Speciali, Zona Industriale, 85050 Tito-Scalo, Italy
- 12:30 **LUNCH**

**Friday, June 8, 2001**  
Vendredi 8 juin 2001

**Afternoon**  
Après-midi

**Session XIII: Ablation, Desorption, Deposition II**  
**Session Chair: J. Perrière**

- L-XIII.1** 14:00      EXCIMER LASER ABLATION OF POLYMERS: THE PHYSICS OF THE PROCESS, L.D. Laude, C. Dicara, C. Dupas, F. Hanus, J.-P. Hornez, K. Kolev, Laboratoire de Physique de l'Etat Solide, Université de Mons-Hainaut, av. Maistriau 23, 7000 Mons, Belgium
- L-XIII.2** 14:30      DIFFRACTIVE GRAY SCALE MASKS FOR EXCIMER LASER ABLATION, A. Braun, K. Zimmer, Institut für Oberflächenmodifizierung e.V., Permoserstr. 15, 04318 Leipzig, Germany
- L-XIII.3** 14:45      HIGH CURRENT PHOTOELECTRIC EFFECTS WITH VUV F2 LASER IRRADIATED METALS, P.E. Dyer, H.V. Snelling and C. Walton, Department of Physics, University of Hull, Hull HU6 7RX, UK
- L-XIII.4** 15:00      MORPHOLOGICAL CHANGES INDUCED ON ALUMINIUM SURFACES BY EXCIMER LASER IRRADIATION, M. Bonelli, A. Miotello, P. Mosaner, INFN and Dipartimento di Fisica, Università di Trento, 38050 Povo (Trento), Italy
- L-XIII.5** 15:15      PULSED LASER DEPOSITION OF PRASEODYMIUM-DOPED CHALCOGENIDE THIN FILMS, G. Leggieri, A. Luches, M. Martino, INFN and Università di Lecce, Dipartimento di Fisica, 73100 Lecce, Italy, M. Desario, F. Prudenzano, Politecnico di Bari, Dipartimento di Elettrotecnica ed Elettronica, 70100 Bari, Italy, A. Rizzo, PASTIS-CNRSM, 72100 Brindisi, Italy
- L-XIII.6** 15:30      REMOVAL MECHANISM OF THIN FILMS DURING LASER INDUCED REAR ABLATION, T. Sano, T. Nakayama, H. Yamada, I. Miyamoto, Osaka University, Graduate School of Engineering, Department of Manufacturing Science, Suita, 565-0871 Osaka, Japan
- L-XIII.7** 15:45      ANALYTICAL DESCRIPTION OF THE NON-CONGRUENT MATERIAL DISTRIBUTION OBTAINED BY PULSED LASER DEPOSITION FROM MULTI-COMPONENT TARGETS, C. Fuchs, F. Antoni and E. Fogarassy, Laboratoire CNRS-PHASE (UPR 292), BP 20, 67037 Strasbourg Cedex 2, France