



Strasbourg (France)

E-MRS Spring Meeting 2004
May 24-28, 2004

SYMPOSIUM N

Laser interactions in materials:
nanoscale to mesoscale

Symposium Organizers:

Chantal Boulmer-Leborgne, University of Orleans, France

Salvatore Amoruso, Coherentia-INFM, Napoli, Italy

David B. Geohegan, Oak Ridge National Laboratory, USA

Wolfgang Kautek, Fed. Inst. for Materials Research, Berlin, Germany

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E-MRS 2004 SPRING MEETING

SYMPOSIUM N

Tuesday, May 25, 2004

Morning

Session I: Nanotechnology

Session chair: Dave Geohegan

- N-I.1** 09:30 -Invited- FEMTOSECOND DYNAMICS OF OPTICALLY EXCITED SINGLE- AND DOUBLE-WALL CARBON NANOTUBES
Tobias Hertel(a,b), (a)Department of Physics and Astronomy, Vanderbilt University, Nashville, TN, USA, (b)Fritz-Haber-Institut der Max-Planck-Gesellschaft, Berlin, Germany
- N-I.2** 10:00 FEMTOCHEMISTRY OF ORGANIC GUEST MOLECULES HOSTED IN NANOCRYSTALLINE ZEOLITES
S. Mintova(a), V. De Waele(b,c), M. Hözl(a), U. Schmidhammer(b), E. Riedle(b), T. Bein(a), (a)Department of Chemistry, LMU, Butenandtstr. 11, 81377 Munich, Germany, (b)Department of Biomolecular Optics, LMU, Oettingenstr. 67, 80538 Munich, Germany, (c)Laboratoire de Chimie Physique-ELYSE, CNRS-Univ. Sud 11, 91405 Orsay, France
- N-I.3** 10:15 PRODUCTION OF ZINC OXIDE NANOCLUSTERS BY PULSED LASER ABLATION
I. Ozerov(a), W. Marine(a), A.V. Bulgakov(b), (a)CRMC-N UPR 7251 CNRS, Université de la Méditerranée, Case 901, 13288 Marseille cedex 9, France, (b) Institute of Thermophysics, Prospect Lavrentyev 1, 630090 Novosibirsk, Russia
TUNGSTEN OXIDE NANOPARTICLES SYNTHESISED BY
- 10:30 **BREAK**

Session II: Nanotechnology

Session chair: Iona Zergioti

- N-II.1** 11:00 -Invited- IMPROVING THE OPTICAL EMISSION OF WAVEGUIDE MATERIALS BY NANOSTRUCTURING THE RARE EARTH ION DISTRIBUTION
R. Serna, Instituto de Optica, CSIC, Serrano 121, 28006 Madrid Spain
- N-II.2** 11:30 CONTROL OF NANOPHASE TRANSFORMATION BY PULSE LASER HEATING OF TITANIUM ALLOYS
F. Guillemot(a), **V.N. Tokarev**(b), S. Lazare(b), C. Belin(b), M.C. Porté-Durrieu(a), Ch. Baquey(a), (a)Biomatériaux et Réparation Tissulaire, INSERM U-577, 146 rue Léo Saignat, 33076 Bordeaux, France, (b)Laboratoire de Physicochimie Moléculaire, CNRS UMR-5803, 351 cours de la Libération, 33405 Talence, France
- N-II.3** 11:45 RANDOM LASER ACTION FROM ZINC OXIDE NANOCRYSTALS EMBEDDED IN ORGANIC POLYMER OR INORGANIC SOL-GEL MATRICES
A. Stasinopoulos(a), R.N. Das(b), E.P. Giannelis(b), S.H. Anastasiadis(a), **D. Anglos**(a), (a)Foundation for Research and Technology - Hellas, Institute of Electronic Structure and Laser, Heraklion, Crete, GREECE, (b)Department of Materials Science and Engineering, Cornell University, Ithaca NY 14853, USA
- N-II.4** 12:00 COLLOIDAL METAL NANOPARTICLES SYNTHESIZED BY FEMTOSECOND LASER ABLATION IN LIQUIDS
M. Meunier, A. V. Kabashin, J.-P. Sylvestre and E. Sacher Laser Processing Laboratory, Department of Engineering Physics, Ecole Polytechnique de Montréal, Case Postale 6079, succ. Centre-ville, Montréal (Québec), Canada, H3C 3A7
- N-II.5** 12:15 PHOTOLUMINESCENCE PROPERTIES OF ZNO NANOPARTICLE PREPARED BY LASER ABLATION IN DIFFERENT SURFACTANT SOLUTIONS
H. Usui, Y. Shimizu, T. Sasaki and N. Koshizaki, Nanoarchitectonics Research Center (NARC), National Institute of Advanced Industrial Science and Technology (AIST), Central 5, 1-1-1 Higashi, Tsukuba, Ibaraki 305-8565, Japan
- N-II.6** 12:30 IRON – IRON OXIDE CORE-SHELL NANOPARTICLES PREPARED BY LASER PYROLYSIS FOLLOWED BY CONTROLLED IN-SITU SUPERFICIAL OXIDATION
F. Dumitrache, I. Morjan, R. Alexandrescu, I. Sandu, I. Voicu, I. Soare, M. Savoiu, C. Fleaca, L. Albu, National Institute for Lasers, Plasma and Radiation Physics, P.O. Box MG-36, 077125 Bucharest, Romania and G. Prodan, V. Ciupina, “Ovidius” University of Constanta, Bd. Mamaia 124, Constanta, Romania
- 12:45 **LUNCH**

Tuesday, May 25, 2004

Afternoon

14:00

POSTER SESSION I

Laser ablation – growth of thin films and nanoparticles

Session chairs: Chantal Leborgne, Salvatore Amoruso, David B. Geohegan, Wolfgang Kautek

- N/PL.01** MANIPULATION OF PLASMA AND AGGREGATE CHARACTERISTICS IN METALLIC FEMTOSECOND-ABLATION-PLUMES USING TWO TIME-DELAYED PULSES
O. Albert, D. Moreau, D. Scuderi, P.P. Pronko*, and J. Etchepare, Laboratoire d'Optique Appliquée ENSTA, Ecole Polytechnique, CNRS UMR 7639, 91761 Palaiseau cedex France
*visiting scientist from CUOS, University of Michigan, USA
- N/PL.02** STRUCTURING OF METALLIC BI-NANO-LAYER FILMS: CONTROL OF THE STRUCTURE DEPTH
A. Lasagni and F. Mücklich, Department for Materials Science, Functional Materials, Saarland University, Saarbrücken, Germany
- N/PL.03** A MODEL BASED CONTROL PROCEDURE FOR OF THE SHAPE OF A Nd:YAG CYLINDRICAL BAR GROWN BY EDGE-DEFINED FILM-FED GROWTH (E.F.G.) METHOD WHEN THE PRESSURE IN THE FURNACE OSCILLATES
L. Braescu, Department of Mathematics, Polytechnical University of Timisoara, P-ta Regina Maria 1, Timisoara 300004, Romania, A.M. Balint, Department of Physics, West University of Timisoara, Blv. V. Parvan 4, Timisoara 300223, Romania, St. Balint, Department of Mathematics, West University of Timisoara, Blv. V. Parvan 4, Timisoara 300223, Romania
- N/PL.04** DETAILED STUDIES OF THE PLUME DEFLECTION EFFECT DURING sub-ps LASER ABLATION OF Si TARGET
A. Dima(a), A. Perrone(a), A. Klini(b), (a)University of Lecce, Physics Department and National Nanotechnology Laboratory of Istituto Nazionale di Fisica della Materia (INFN), 73100-Lecce, Italy, (b)University of Crete, Department of Physics and Foundation for Research and Technology-Hellas (FORTH), Laser and Application Division, 71110 Heraklion, Crete, Greece
- N/PL.05** FORMATION OF NANOPARTICLES IN RESONANCE RADIATION FIELD
V.V. Levdansky, Heat and Mass Transfer Institute NASB, 15 P. Brovka Str., 220072 Minsk, Belarus, J. Smolik and P. Moravec, Institute of Chemical Process Fundamentals AS CR, Rozvojova 135, 165 02 Prague 6, Czech Republic
- N/PL.06** NUMBER DENSITY AND SIZE DISTRIBUTION OF DROPLETS IN KrF EXCIMER LASER DEPOSITED BORON CARBIDE FILMS
T. Szörényi, Research Group on Laser Physics, PO Box 406, 6701 Szeged, Hungary R. Stuck, F. Antoni and E. Fogarassy, CNRS-PHASE, BP 20, 67037 Strasbourg Cedex 2, France
- N/PL.07** FEMTOSECOND PULSED LASER ABLATION OF GROUP 4 ELEMENTS CARBIDES
R. Teghil, L. D'Alessio, A. De Bonis, A. Galasso, P. Villani, M. Zaccagnino, ipartimento di Chimica, Università della Basilicata, Potenza, Italy, A. Santagata, CNR – IMIP, Sez. Potenza, Tito Scalo (PZ), Italy
- N/PL.08** HEAT PROPAGATION DURING PULSED LASER TREATMENT OF THIN FILMS: FROM THE CONTAMINATED SURFACE TO THE SUBSTRATE
N. Semmar, C. Boulmer-Leborgne, GREMI, CNRS/Université d'Orléans, 14 rue d'Issoudun, BP 6744, 45067 Orléans cedex2, France
- N/PL.09** THERMAL PROPERTIES CHARACTERISATION OF CONDUCTIVE THIN FILMS AND SURFACES BY PULSED LASERS
J. Martan, N. Semmar, C. Leborgne, E. Le Menn, J. Mathias, GREMI, CNRS/Université d'Orléans, 14 rue d'Issoudun, BP 6744, 45067 Orléans cedex2, France
- N/PL.10** EXPANSION DYNAMICS OF LASER PRODUCED PLASMAS AND THIN FILM GROWTH OF MANGANATES
S. Amoruso, R. Bruzzese, M. Vitiello, X. Wang, Coherentia-INFN and Dipartimento di Scienze Fisiche, Università degli Studi di Napoli Federico II, Complesso Universitario di Monte S. Angelo, Ed. G, Via Cintia, 80126 Napoli, Italy, M. Angeloni, G. Balestrino, A. Tebano, Coherentia-INFN and Dipartimento di Ingegneria Meccanica, Università di Roma Tor Vergata, Via del Politecnico 1, 00133 Roma, Italy
- N/PL.11** NANOSCALE TAYLORING OF Er³⁺ DOPED LEAD-NIOBIUM-GERMANATE THIN FILMS PRODUCED BY PULSED LASER DEPOSITION
O. Sanz(a), M. Jiménez(a), J. Gonzalo(a), J.M. Fernández(a), R. Balda(b), J. Fernández(b), J. García(c), (a)Instituto de Optica, CSIC, Serrano 121, 28006 Madrid, Spain, (b)Dpto. de Fisica Aplicada I, Universidad del Pais Vasco, Alameda Urquijo s/n, 48013 Bilbao, Spain, (c)Centro Nacional de Aceleradores, P. Tecnológico "Cartuja"93, 41092 Sevilla, Spain
- N/PL.12** MASS SPECTROMETRY STUDY OF GAS PHASE GENERATED BY UV LASER ABLATION OF THE Ca₄GdO(BO₃)₃ (GdCOB) CERAMIC TARGET
Rachel Chety-Gimondo, Frédéric Aubriet, Eric Millon, LSMCL, Université de Metz, Institut de Physique Electronique et de Chimie, 1 bd Arago, 57078 Metz Cedex 03, France
- N/PL.13** PLUME SPLITTING IN LASER PRODUCED TITANIUM PLASMA
T. Kerija, S. Abdelli-Messaci, S. Nait-Amor, S. Lafane, S. Malek and A. Bendib, Centre de Developpement des Technologies Avancées, Division Milieux Ionisés & Lasers, Lot. 20 Aout 1956, BP 17, Baba Hassen, Alger, Algérie

- N/PL14** SYNTHESIS OF NICKEL NANOPARTICLES AND NANOPARTICLES MAGNETIC THIN FILM BY FEMTOSECOND LASER ABLATION IN VACUUM
S. Amoruso(a), G. Ausanio(b), C. de Lisio(a), V. Iannotti(b), M. Vitiello(a), X. Wang(a) and L. Lanotte(b), (a)Coherentia-INFM and Dipartimento di Scienze Fisiche, Università degli Studi di Napoli Federico II, Complesso Universitario di Monte S. Angelo, Ed. G, Via Cintia, 80126 Napoli, Italy, (b)INFM – Unità di Napoli and Dipartimento di Scienze Fisiche, Università degli Studi di Napoli Federico II, Piazzale Tecchio 80, 80125 Napoli, Italy
- N/PL15** THE EXPANSION OF A LASER-PRODUCED SILVER PLUME IN BACKGROUND GASES
B. Toftmann, J. Schou, Risø National Laboratory, 4000 Roskilde, Denmark, S. Amoruso, Coherentia-INFM and Dipartimento di Scienze Fisiche, Università di Napoli Federico II, 80126 Napoli, Italy, J.G. Lunney, Trinity College, Dublin 2, Ireland
- N/PL16** CO CLUSTER THIN FILMS DEPOSITED USING PULSED LASER ABLATION: MFM INVESTIGATIONS
F. Dumas-Bouchiat(a), C. Champeaux(a), H.S. Nagaraja(a), F. Rossignol(a), A.Catherinot(a), D. Cros(b), (a)SPCTS UMR CNRS 6638, 123 av. A. Thomas 87060 Limoges Cedex, France, (b)IRCOM UMR CNRS 6615, 123 av. A. Thomas 87060 Limoges Cedex, France
- N/PL17** PULSED LASER DEPOSITION OF PEPSIN THIN FILMS
G. Kecskeméti(a), N. Kresz(a), T. Smausz(b), A. Nográdi(a), B. Hopp(b), (a)Department of Optics and Quantum Electronics, University of Szeged, 6720 Szeged, Dóm tér 9, Hungary, (b)Hungarian Academy of Sciences and University of Szeged, Research Group on Laser Physics, 6720 Szeged, Dóm tér 9, Hungary
- N/PL18** THREE THRESHOLD INTENSITIES OF LASER RADIATION IN Si
A. Medvid(a), A. Michko(a), P. Onufrievs(a) and P. Lytvyn(b), (a)Riga Technical University, 14 Azenes Str., 1048 Riga, Latvia, (b)Institute of Semiconductor Physics, 45 Pr. Nauki, 252650 Kyiv –252028, Ukraine
- N/PL19** PULSED LASER DEPOSITION OF TiO₂ AND Co-DOPED TiO₂ THIN FILMS
N. Popovici(a), P.M. Sousa(a), M.L. Paramês(a), A.J. Silvestre(b), A.K. Axelsson (c), N. McN Alford(c) and O. Conde(a), (a)Departamento de Física, Universidade de Lisboa, 1749-016 Lisboa, Portugal, (b)Instituto Superior de Engenharia de Lisboa, 1949-014 Lisboa, Portugal, (c)Physical Electronics and Materials, London Southbank University, London SE1 0AA, U.K.
- N/PL20** PREPARATION OF ALUMINUM OXIDE THIN FILMS BY LOW-TEMPERATURE DECOMPOSITION OF AL ISOPROPOXIDE WITH EXCIMER ULTRAVIOLET SOURCES
Z.M. Wang(a), J.-Y. Zhang(a), Q. Fang(b), M.L. Chen(a), Ian W. Boyd(b), (a)Structure Research Laboratory, University of Science and Technology of China, Hefei 230026, P.R. China, (b)Electronic and Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, U.K.
- N/PL21** EPITAXIAL GROWTH OF La_{0.7}Ca_{0.3}MnO₃ THIN FILMS BY KrF EXCIMER LASER ASSISTED METAL ORGANIC DEPOSITION PROCESS
K. Daoudi, T. Tsuchiya, I. Yamaguchi, T. Manabe, T. Kumagai and S. Mizuta, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba Central 5, 1-1 Higashi, Tsukuba, Ibaraki 305-8565, Japan
- N/PL22** GROWTH BY PLD OF METALLIC FILM FREE FROM DROPLETS
R. Benzerga, A. Basillais, E. Le Menn, C. Boulmer-Leborgne, GREMI, Université d'Orléans, BP 6744, 45067 Orléans Cedex 2, France, J. Perrière, GPS Université Paris VI, Campus Boucicaut, 140 rue de Lourmel, 75015 Paris, France
- N/PL23** PREPARATION OF EPITAXIAL PZT FILM ON LA-DOPED STO SUBSTRATES BY AN EXCIMER LASER METAL ORGANIC DEPOSITION
T. Tsuchiya, K. Daoudi, I. Yamaguchi, T. Manabe, T. Kumagai and S. Mizuta, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan
- N/PL24** SnO₂ NANOSTRUCTURED FILMS OBTAINED BY PULSED LASER ABLATION DEPOSITION
C. Ristoscu, Lasers Department, NILPRP, PO Box MG-36, Bucharest V 77125, Romania, L. Cultrera, University of Lecce, Physics Department, 73100-Lecce, Italy, A. Dima, A. Perrone, University of Lecce, Physics Department and National Nanotechnology Laboratory of Istituto Nazionale di Fisica della Materia (INFM), 73100 Lecce, Italy, R. Cutting, H L Du, A. Busiakiewicz, Z. Klusek, S. Datta, S. Rose, Advanced Materials Research Institute, Northumbria University, U.K.
- N/PL25** FEMTOSECOND PULSED LASER DEPOSITION OF MGO THIN FILMS
R. Benzerga, C. Boulmer-Leborgne, A.L. Thomann, GREMI Université d'Orléans France, J. Perrière, GPS Univ. Paris 6, 140 rue de Lourmel, 75015 Paris, France, E. Million, LSMCL, Metz, France, D. Scuderi, D. Moreau, O. Albert, J. Etchepare, LOA ENSTA, 91761 Palaiseau, France
- N/PL26** GROWTH AND PROPERTIES OF Er-DOPED ZnO PLD THIN FILMS
O. Pons-Y-Moll, J. Perrière, R.M. Defourneau, D. Defourneau, Groupe de Physique des Solides, Université Paris 6, 140 rue de Lourmel, 75015 Paris, France, E. Million, LSMCL, Univ. Metz, France, W. Seiler, ENSAM, Paris, France, R. Perez-Casero, A. Gutierrez-Llorente, Univ. Autonoma Madrid, Spain, P. Goldner, B. Viana, ENSCP, Paris, France
- N/PL27** APPEARANCE OF WAVE-FRONT DISLOCATIONS DUE TO THE LASER BEAM SELF-ACTION IN LIQUID CRYSTAL
Svitlana Subota, Victor Reshetnyak, Physics Faculty, Kyiv Taras Shevchenko University, Prosp. Glushkova 6, Kyiv 03680, Ukraine
- N/PL28** FABRICATION OF TIN OXIDE NANOPARTICLES BY PULSED LASER ABLATION IN SOLUTIONS AND THEIR APPLICATIONS
Takeshi Sasaki, Hiroyuki Usui, Changhao Liang, Yoshiki Shimizu, Naoto Koshizaki, Nanoarchitectonics Research Center, National Institute of Advanced Industrial Science and Technology, Tsukuba Central 5, 1-1-1 Higashi, Ibaraki 305-8565, Japan

- N/PL.29** PULSED LASER ABLATION OF TERNARY CARBIDES
L. D'Alessio, A. De Bonis, A. Galasso, P. Villani, R. Teghil, M. Zaccagnino, Dipartimento di Chimica, Università della Basilicata, Potenza, Italy, A. Santagata, CNR – Istituto Metodologie Inorganiche e Plasmi, Sez. Potenza, Tito Scalo (PZ), Italy, D. Ferro, CNR – Istituto per lo Studio dei Materiali Nanostrutturati, Sez. Roma1, Roma, Italy, G. De Maria, Dipartimento di Chimica, Università «La Sapienza», Roma, Italy
- N/PL.30** EXCITON-SPIN DYNAMICS AND LIFETIME OF EXCITON POLARITONS IN CuCl
H.R. Soleimani, S. Cronenberger, O. Crégut, J.-P. Likforman, M. Gallart, T. Ostatnický, P. Gilliot and B. Hönerlage, IPCMS, UMR 7504 CNRS - ULP, B.P. 43, 23 rue du Loess, 67034 Strasbourg, France
- N/PL.31** BORON NITRIDE - SILICON NITRIDE MULTILAYERED THIN FILMS DEPOSITED BY RADIOFREQUENCY PLASMA-ASSISTED REACTIVE PULSED LASER ABLATION
V. Marotta, S. Orlando, CNR - IMIP/PZ, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy and G. Mattei, CNR-IMIP, P.O.B. 10, 00016 Monterotondo Scalo, Rome, Italy
- N/PL.32** COMPARISON OF THE ABLATION RATES OF PHOTOREACTIVE POLYMERS USING A QUARTZ MICRO BALANCE
Th. Dumont, T. Lippert, A. Wokaun, Paul Scherrer Institute, 5232 Villigen, Switzerland and S. Lazare, Laboratoire de Physico-Chimie Moléculaire, Université de Bordeaux1, 33405 Talence, France
- N/PL.33** BORON NITRIDE THIN FILMS DEPOSITED BY RF PLASMA REACTIVE PULSED LASER ABLATION AND SPUTTERING
V. Marotta, S. Orlando, A. Santagata, CNR - IMIP, Sezione di Potenza, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy
- N/PL.34** SPACE AND TIME RESOLVED EMISSION SPECTROSCOPY OF ZINC OXIDE PLASMA PLUME PRODUCED BY PULSED LASER ABLATION
S. Orlando, A. Santagata, CNR - IMIP/PZ, Zona Industriale di Tito Scalo, 85050 Tito Scalo (PZ), Italy, R. Teghil and P. Villani, Dipartimento di Chimica, Università della Basilicata, 85100 Potenza, Italy
- N/PL.35** COMPARISON OF THE PROPERTIES OF ALUMINA THIN FILMS DEPOSITED BY PULSED LASER DEPOSITION AND PLASMA ENHANCED CHEMICAL VAPOR DEPOSITION
C. Cibert, C. Champeaux, H. Hidalgo, C. Tixier, P. Tristant, A. Catherinot, J. Desmaison, SPCTS, UMR CNRS 6638, Université de Limoges, 123 avenue Albert Thomas, 87060 Limoges Cedex, France
- N/PL.36** DYNAMICS OF CLUSTER EMISSION UNDER FEMTOSECOND LASER ABLATION OF SILICON: A PUMP-PROBE STUDY
A.V. Bulgakov(a), I. Ozerov(b), W. Marine(b), (a)Institute of Thermophysics, Prospect Lavrentyev 1, 630090 Novosibirsk, Russia, (b)Université de la Méditerranée, Faculté des Sciences de Luminy, CRMCN, UPR CNRS 7251, 13288 Marseille Cedex 9, France
- N/PL.37** SOL-GEL SYNTHESIZED RODAMINE 6G-SILICA HYBRIDS: A ROUTE TOWARDS SOLID STATE DYE LASERS
A. Anedda(a), C.M. Carbonaro(a), F. Clemente(a), R. Corpino(a), S. Grandi(b), F. Meinardi(c), P.C. Mustarelli(b) and P.C. Ricci(a), (a)Dipartimento di Fisica, Università di Cagliari, and INFN, UDR-Ca, s.p. n°8, Km 0.7, 09042 Monserrato, Cagliari, Italy, (b)Dipartimento di Chimica-Fisica and INFN, Università di Pavia, Via Taramelli 16, 27100 Pavia, Italy, (c)Dipartimento di Scienza dei Materiali and INFN, University of Milano-Bicocca, via Cozzi 53, 20125 Milano, Italy
- N/PL.38** PULSED LASER DEPOSITION OF HfO₂ AND Pr_xO_y HIGH-K FILMS ON Si(100)
M. Ratzeke, D. Wolframm, M. Kappa, S. Kouteva-Arguirova, Tz. Arguirov, and J. Reif, LS Experimentalphysik II, BTU Cottbus, and JointLab IHP/BTU, Universitätsplatz 3-4, 03044 Cottbus, Germany
- N/PL.39** INVESTIGATION OF THE BEHAVIOUR OF A LANGMUIR PROBE IN A LASER ABLATION PLASMA
B. Doggett, C. Budtz-Jørgensen and J.G. Lunney, Trinity College, Dublin 2, Ireland, P. Sheerin and M. Turner, Dublin City University, Glasnevin, Dublin 9, Ireland
- N/PL.40** CHROMIUM OXIDES TARGETS AND PULSED LASER
F. Guinneton(a), O. Monnereau(a), D. Stanoi(b), G. Socol(b), C. Ristoscu(b), E. Axente(b), I.N. Mihailescu(b), T. Zhang(c), C. Grigorescu(d), L. Tortet(a), (a)Laboratoire MADIREL, UMR 6121, Université de Provence, Centre de St-Jérôme, Avenue Escadrille Normandie-Niemen, 13397 Marseille Cedex 20, France, (b)National Institute for Laser, Plasma and Radiation Physics-Laser Department, P.O. Box MG-36, 77125 Bucharest, Romania, (c)Experimental Solid State Group, The Blackett Laboratory, Imperial College of Science, Technology and Medicine, Prince Consort Road, London SW7 2BZ, U.K., (d)National Institute of Research and Development for Optoelectronics, 77125 Bucharest, Romania
- N/PL.41** ULTRAFAST NON-EQUILIBRIUM ELECTRON DYNAMICS IN NOBLE METALS UNDER FEMTOSECOND LASER PULSE
L.D. Pietanza(a), G. Colonna(b), S. Longo(a) and M. Capitelli(a,b), (a)Dipartimento di Chimica, Università degli Studi di Bari, Italy, (b)IMIP-CNR, sect. Bari, Italy
- N/PL.42** THEORETICAL MODELLING OF LASER INDUCED BREAKDOWN SPECTROSCOPY IN WATER
A. Casavola(a), F. Taccogna(a), G. Seller(a), G. Colonna(b), (a)Dipartimento di Chimica, Università di Bari, Italy, (b)IMIP-CNR, sect. Bari, Italy
- N/PL.43** PREPARATION AND CHARACTERIZATION OF TIN OXIDE FILMS BY EXCIMER LASER METAL ORGANIC DEPOSITION PROCESS
T. Tsuchiya, M. Takeda, K. Daoudi, I. Yamaguchi, T. Manabe, T. Kumagai and S. Mizuta, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

- N/PI.44** THIN FILMS OF SOME HEUSLER ALLOYS CO₂MX (X=SI,GA,GE,SN,SBSN) DEPOSITED WITH PULSED LASER AT MODERATE SUBSTRATE TEMPERATURE
E. Valerio(a), C. Grigorescu(b), S.A. Manea(c), F. Guinneton(d) W. Branford(e), M. Autric(a), (a)IMFT/IM2 /UNIMECA, Technopôle de Chateau-Gombert, 60 rue Joliot Curie, 13453 Marseille cedex 13, France, (b)National Institute of R & D Optoelectronics- INOE 2000, P.O. Box MG5, ATOMISTILOR 1, Comuna Magurele, Judet Ilfov, RO77125 Romania, (c)National Institute R & D Materials Physics, P.O. Box MG-7, Atomistilor 105bis, Comuna Magurele, Judet Ilfov, 77125 Romania, (d)MADIREL, Centre de St-Jérôme, Avenue Escadrille-Normandie-Niemen, 13397 Marseille Cedex 20, France, (e)Experimental Solid State Group, Imperial College of Science, Technology & Medicine, Prince Consort Road, London 7 2BZ, U.K.
- N/PI.45** LASER INDUCED PLASMA SPECTROSCOPY FOR CHEMICAL ANALYSIS IN WATER SOLUTION
A. De Giacomo, M. Dell'Aglio, Department of Chemistry of Bari, Via Orabona 4, 70126 Bari, Italy, O. De Pascale, CNR-IMIP sec. Bari, Via Orabona 4, 70126 Bari, Italy
- N/PI.46** MODELING THE FEMTOSECOND LASER BEAM WAIST SIZE DEPENDANCE OF ABLATION THRESHOLD
 Jean-Yves Degorce, Sébastien Besner and Michel Meunier, Laser Processing Laboratory, Department of Engineering Physics, Ecole Polytechnique de Montréal, Canada
- N/PI.47** ZINC OXIDE FILMS GROWN BY NANOSECOND AND SUB-PICOSECOND PULSED LASER DEPOSITION
A. Klini(a), M. Jelinek(b), D. Anglos(a), C. Fotakis(a), (a) Institute of Electronic Structure and Laser, Foundation for Research and Technology - Hellas, Heraklion, Crete, Greece, (b) Institute of Physics, Academy of Sciences of Czech Republic, Prague, Czech Republic
- N/PI.48** PULSED LASER DEPOSITION OF HYDROXYAPATITE THIN FILMS FOR BIOMEDICAL APPLICATIONS: STATE OF THE ART AND NEW ATTEMPTS FOR FILM BIOINTEGRABILITY IMPROVEMENT
Valentin Nelea, Groupe des Couches Mincees, Departement de Genie Physique, Ecole Polytechnique de Montreal, C.P. 6079, Succursale Centre-ville, Montreal, H3C 3A7, Quebec, Canada
- N/PI.49** (Zr, Sn)TiO₄ THIN FILMS FOR APPLICATION IN ELECTRONICS
 M. Nistor, F. Gherendi, M. Magureanu, N.B. Mandache, National Institute for Lasers, Plasma and Radiation Physics, Bucharest-Magurele, A. Ioachim, M.G. Banciu, L. Nedelcu, National Institute of Materials Physics, Bucharest-Magurele, H.V. Alexandru, University of Bucharest, Romania
- N/PI.50** LASER ABLATED SR2FEMOO6 PLASMA STUDIED BY OPTICAL EMISSION SPECTROSCOPY
A. Santagata, A. Di Trollo, G. Parisi, R. Larciprete, CNR-IMIP, Zona Industriale, 85050 Tito calo (PZ), Italy
- N/PI.51** LASER DEPOSITION OF STEEL COMPONENTS USING GAS- AND WATER-ATOMISED POWDER : THE DIFFERENCES AND THE MECHANISMS LEADING TO THEM
Andrew J. Pinkerton and Lin Li, University of Manchester Institute of Science and Technology (UMIST), Manchester, U.K.
- N/PI.52** THICKNESS DISTRIBUTION OF CARBON NITRIDE FILMS GROWN BY INVERSE PULSED LASER DEPOSITION
L. Égerházi and Zs. Geretovszky, Department of Optics and Quantum Electronics, University of Szeged, P.O. Box 406, 6701 Szeged, Hungary, T. Szörényi, Research Group on Laser Physics, Hungarian Academy of Sciences, P.O. Box 406, 6701 Szeged, Hungary
- N/PI.53** ON INVERSE PULSED LASER DEPOSITION OF CARBON NITRIDE FILMS: SIZE DISTRIBUTION OF PARTICULATES
L. Égerházi and Zs. Geretovszky, Department of Optics and Quantum Electronics, University of Szeged, P.O. Box 406, 6701 Szeged, Hungary, T. Szörényi, Research Group on Laser Physics, Hungarian Academy of Sciences, P.O. Box 406, 6701 Szeged, Hungary
- N/PI.54** GROWTH AND CHARACTERIZATION OF RUSR2GDCU2O8 THIN FILMS
A. Di Trollo and G.P. Parisi, CNR-IMIP, sez. di Potenza, 85050 Tito Scalo (PZ), Italy
- N/PI.55** LASER-INDUCED OPTICAL BREAKDOWN PROCESSING OF SEMICONDUCTORS AND METALS
Andrei V. Kabashin, Annie Trudeau, Michel Meunier ? École Polytechnique de Montréal, Département de génie physique, Case Postale 6079, succ. Centre-Ville, Montréal (Québec), Canada, H3C 3A7 ? Wladimir Marine ? GPEC, UMR CNRS 663, Departement de Physique, Case 901 ? Faculte des Sciences de Luminy,13288 Marseille, Cedex 9, France
- N/PI.56** FABRICATION OF ALIGNED BORON NANOWIRES BY CATALYST-FREE LASER ABLATION
Zhongke Wang, Laboratory of Inorganic Chemistry, Swiss Federal Institute of Technology Zurich and State key Laboratory of Laser Technology, Huazhong University of Science and Technology, Yoshiki Shimizu, Takeshi Sasaki, Naoto Koshizaki, Kenji Kawaguchi, Kazuhiro Kiriara, Nanoarchitectonics Research Center National Institute of Advanced Industrial Science and Technology Central 5, Tsukuba, Ibaraki 305-8565, Japan
- N/PI.57** THE OXIDATION OF BORON DURING LASER DEPOSITION BORON FILMS
Zhongke Wang, Laboratory of Inorganic Chemistry, Swiss Federal Institute of Technology Zurich, Kenji Kawaguchi, Kazuhiro Kiriara, Takeshi Sasaki, Yoshiki Shimizu, Naoto Koshizaki, Nanoarchitectonics Research Center National Institute of Advanced Industrial Science and Technology Central 5, 1-1-1 Higashi, Tsukuba, Ibaraki 305-8565, Japan, Kaoru Kimura, Department of advanced materials science, Graduate school of frontier science The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan

Session III: PLD

Session chair: Jacques Perrière

- N-III.1** 16:30 -Invited- IN-SITU STUDIES USING SOFT AND HARD X-RAYS OF NOVEL PLD-GROWN FILMS
P.R. Willmott, R. Herger, C.M. Schlepuezt and B.D. Patterson, Swiss Light Source, Paul Scherrer Institut, Villigen, Switzerland
- N-III.2** 17:00 CAN THIN PEROVSKITE FILM MATERIALS BE APPLIED AS MODEL SYSTEMS FOR BATTERY APPLICATIONS?
M.J. Montenegro(a), T. Lippert(a), S. Müller(b), A. Weidenkaff(c,d), P.R. Willmott(a), A. Wokaun(a), (a)Paul Scherrer Institut, 5232 Villigen PSI, Switzerland, (b)Euresearch, Effingerstr. 19, 3001 Bern, Switzerland, (c)EMPA Swiss Federal Laboratories for Materials Testing and Research, Überlandstrasse 129, 8600 Dübendorf, Switzerland, (d)University Augsburg, Universitätstr. 1 86159, Augsburg, Germany
- N-III.3** 17:15 REAL-TIME ANALYSIS OF F2-LASER-INDUCED GROWTH OF ULTRATHIN SILICON OXIDE BY SPECTROSCOPIC ELLIPSOMETRY
Patrik Patzner, Andrey Osipov and Peter Hess, Institute of Physical Chemistry, University of Heidelberg, 69120 Heidelberg, Germany
- N-III.4** 17:30 KINETICS OF INTERFACIAL LAYER FORMATION DURING PULSED LASER DEPOSITION OF HfO₂ ON SILICON
V. Craciun, C. Essary and R.K. Singh, Materials Science and Engineering, University of Florida, Gainesville FL 32611, USA, N.D. Bassim, Naval Research Laboratory, Washington DC, USA
- N-III.5** 17:45 HIGH LASER FLUENCE DEPOSITION OF ORGANIC MATERIALS IN WATER MATRICES BY "MAPLE"
B. Toftmann(a), K. Janik(b), R. Pedrys(b) and J. Schou(a), (a)Risø National Laboratory, 4000 Roskilde, Denmark, (b)Institute of Physics, Jagiellonian University, Krakow, Poland
- N-III.6** 18:00 PLD OF SR2FEMOO6 THIN FILMS: GROWTH AND MAGNETIC PROPERTIES
A. Di Trollo, R. Larciprete, G.P. Parisi, CNR-IMIP, Tito Scalo (PZ), Italy, A.M. Testa, D. Fiorani, N. Zema and S. Turchini, CNR-ISM, Roma, Italy
- N-III.7** 18:15 PROCESSING OF ADHESIVE PROTEIN THIN FILMS BY THE MATRIX ASSISTED PULSED LASER EVAPORATION TECHNIQUE
R. Cristescu, G. Socol, I.N. Mihailescu, National Institute for Lasers, Plasma and Radiation Physics, P.O. Box MG-36, 077125, Bucharest-Magurele, Romania, D. Mihaiescu, University of Agriculture Sciences and Veterinary Medicine, 59 Marasti, Bucharest, Romania, C. Ghica, National Institute for Materials Physics, P.O. Box MG-7, Bucharest-Magurele, Romania, I. Stamatin, University of Bucharest, P.O. Box MG-11, 100125, Bucharest-Magurele, Romania, D.B. Chrisey, US Naval Research Laboratory, Washington DC 20375-5345, USA
- N-III.8** 18:30 MECHANICAL AND TRIBOLOGICAL CHARACTERIZATION OF TETRAHEDRAL DIAMOND-LIKE CARBON DEPOSITED BY FEMTOSECOND PULSED LASER DEPOSITION ON PRE-TREATED ORTHOPAEDIC BIOMATERIALS
A.-S. Loir(a), F. Garrelie(a), C. Donnet(1), M. Belin(b), B. Forest(c), F. Rogemond(a) and P. Laporte(a), (a)Laboratoire Traitement du Signal et Instrumentation, CNRS UMR 5516, Université Jean Monnet, 10 Rue Barroin, Bâtiment F, 42000 Saint-Etienne, France, (b)Laboratoire de Tribologie et Dynamique des Systèmes, CNRS UMR 5513, Ecole Centrale de Lyon, BP 163, 69134 Ecully Cedex, France, (c)Centre Science des Matériaux et des Structures, Département Mécanique Physique et Interfaces, Ecole Nationale Supérieure des Mines, 158 Cours Fauriel, 42023 Saint-Etienne Cedex, France
- N-III.9** 18:45 GROWTH OF CHROMIUM OXIDES BY LASER ABLATION OF Cr₂O₃
M. Tabbal, S. Kahwaji, T.C. Christidis, S. Isber, American University of Beirut, Lebanon, B. Nsouli, K. Zahraman Lebanese Atomic Energy Commission-CNRS, Lebanon

Wednesday, May 26, 2004

Afternoon

Session IV: Fundamental of laser ablation

Session chair: Jürgen Reif

- N-IV.1** 14:00 -Invited- FEMTOSECOND LASER INDUCED X-RAY EMISSION FROM VARIOUS MATERIALS
Hiroshi Fukumura and Koji Hatanaka, Department of Chemistry, Graduate School of Science, Tohoku University, Japan
- N-IV.2** 14:30 THERMAL EFFECTS DUE TO FEMTOSECOND LASER-METAL INTERACTION
S. Valette, R. Le Harzic, N. Huot, E. Audouard, Laboratoire LTSI, Bâtiment F, 10 rue Barrouin, 42000 Saint-Etienne, France and R. Fortunier, Ecole des Mines de Saint-Etienne, Centre SMS, 158, Cours Fauriel, 42023 Saint-Etienne cedex 2, France
- N-IV.3** 14:45 MECHANISM OF ULTRASHORT LASER ABLATION OF METALS: MOLECULAR DYNAMICS SIMULATION
N.N. Nedialkov, S.E. Imamova and P.A. Atanasov, Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko Shose Blvd., Sofia 1784, Bulgaria, P. Berger and F. Dausinger, Institut für Strahlwerkzeuge, Universität Stuttgart, Pfaffenwaldring 43, 70569 Stuttgart, Germany
- N-IV.4** 15:00 STOICHIOMETRY OF PLASMA PRODUCED DURING LASER INDUCED BREAKDOWN SPECTROSCOPY IN CU-BASED ALLOYS
F. Colao, R. Fantoni, L. Fornarini, V. Lazic, ENEA, FIS-LAS, C.R. Frascati, Italy, A. Santagata, CNR-IMIP-PZ, Tito Scalo (PZ) Italy, R. Teghil Dip. Chimica, Università della Basilicata (PZ), Italy and A. Giardini, Dip. Chimica, Università 'La Sapienza' Roma, Italy
- N-IV.5** 15:15 FEMTOSECOND LASER IONIZATION MASS SPECTROSCOPY - HIGH RESOLUTION DEPTH PROFILING ANALYSIS OF MULTILAYER-STRUCTURES
F. Costache, Zhu Lei, M. Ratzke, D. Wolframm and J. Reif, BTU Cottbus, Germany
- N-IV.6** 15:30 STUDY OF THE TEMPERATURE DISTRIBUTION DURING ISOMERISATION REACTION OF POLYACETYLENE INDUCED BY LASER EFFECT
A. Djebaili, Laboratoire d'Etude des Matériaux Polymères, L. Messai, Faculty of Science, University of Tebessa, Algeria, Z. Skanderi, Department of Chemistry, University of Batna, M.J.M. Abadie, Laboratoire d'étude des matériaux organique, France
- N-IV.7** 15:45 ON THE INFLUENCE OF THE LASER SPOT SIZE AND THE PULSE REPETITION RATE ON BACKSIDE WET ETCHING
R. Boehme, K. Zimmer, Leibniz-Institut für Oberflächenmodifizierung e.V., Leipzig, Germany
- 16:00 **BREAK**

Session V: Laser assisted CVD

Session chair: Salvatore Amoruso

- N-V.1** 16:30 DEPOSITION OF NANOMETRIC STRUCTURES FROM IRON CARBONYL VAPORS UNDER THE ACTION OF LASER RADIATION
S.A. Mulenko(a), A.V. Izvekov(a), Y.N. Petrov(a), V.S. Ovechko(b), V.P. Mygashko(b), (a)Institute for Metal Physics, NAS of Ukraine, Kiev, Ukraine, (b)Kiev Taras Shevchenko National University, Kiev, Ukraine
- N-V.2** 16:45 LASER ASSISTED HOMOGENEOUS GAS-PHASE NUCLEATION
Oscar Alm, Lars Landström, Mats Boman, Claes-Göran Granqvist and Peter Heszler, Uppsala University, The Angstrom Laboratory, Box 538, SE-75121 Uppsala, Sweden
- 17:00 – 18:30 POSTER SESSION II

Fundamental of laser ablation – growth of thin films and nanoparticles

Session chairs: Chantal Leborgne, Salvatore Amoruso, David B. Geohegan, Wolfgang Kautek

- N/PII.01** A COMPARATIVE STUDY OF WIRE FEEDING AND POWDER FEEDING IN DIRECT DIODE LASER DEPOSITION FOR RAPID PROTOTYPING
Waheed Syed and Lin Li, Laser Processing Research Centre, Department of Mechanical, Aerospace and Manufacturing Engineering University of Manchester Institute of Science and Technology (UMIST), U.K.
- N/PII.02** SOLID FREEFORM FABRICATION OF CERAMICS USING A NOVEL LASER HYBRID ELECTROSPRAYING TECHNIQUE
Yiquan Wu(a), Kwang-Leong Choy(b), (a)Department of Materials, Imperial College London, London SW7 2AZ, U.K., (b)School of Mechanical, Materials, Manufacturing Engineering and Management, University of Nottingham, University Park, NG7 2RD, U.K.

- N/PII.03** FEMTOSECOND LASER FABRICATION OF MICROSPIKE-ARRAYS FOR MICRO FIELD EMITTER ON TUNGSTEN SURFACE
Tomokazu Sano, Masato Yanai, Etsuji Ohmura, Yasumitsu Nomura, Yoshinori Hirata, Ukyou Ikeda, Isamu Miyamoto, and Kojiro F. Kobayashi, Graduate School of Engineering, Osaka University, 2-1 Yamada-Oka, Suita, Osaka 565-0871, Japan
- N/PII.04** MODELLING THE CHAOTIC PHENOMENA IN LASER CUTTING AND STRIATION FORMATION
L.M. Wee and L. Li, UMIST, Manchester, U.K.
- N/PII.05** MULTIPLE LAYER LASER DIRECT WRITING METAL DEPOSITION IN ELECTROLYTE SOLUTION
L.M. Wee and L. Li, UMIST, Manchester, U.K.
- N/PII.06** ASSESSMENT OF STRUCTURAL DAMAGE OF DNA BASES AT 157 nm AND 2.5 mm
Z. Kollia, E. Sarantopoulou, A.C. Cefalas, National Hellenic Research Foundation, TPCI, 48 Vassileos Constantinou Avenue, 11635 Athens, Greece, Z. Samardžija, S. Kobe, Jožef Stefan Institute, Nanostructured Materials, Jamova 39, 1000 Ljubljana, Slovenia
- N/PII.07** CORROSION PERFORMANCE OF LASER WELDED 5182 ALUMINUM ALLOY
Jinhong Zhu, School of Materials Engineering, Henan University of Science and Technology, Luoyang 471003, China (on behalf of University of Manchester Institute of Science and Technology), Zhu Liu, Corrosion and Protection Center, UMIST, Manchester M60 1QD, U.K., Lin Li, Laser Processing research Center, UMIST, Manchester M60 1QD, U.K., G Abbas, Laser Processing research Center, UMIST, Manchester M60 1QD (on leave of National University of Science and Technology, Rawalpindi, Pakistan
- N/PII.08** COMPARISON OF CO2 AND DIODE LASER WELDING OF AZ31 MAGNESIUM ALLOYS
Jinhong Zhu, School of Materials Engineering, Henan University of Science and Technology, Luoyang 471003, China (on behalf of University of Manchester Institute of Science and Technology), Lin Li, Laser Processing research Center, UMIST, Manchester M60 1QD, U.K., Zhu Liu, Corrosion and Protection Center, UMIST, Manchester M60 1QD, U.K.
- N/PII.09** WEAR STUDIES OF LASER-MELTED MAGNESIUM ALLOYS
G. Abbas*, Laser Processing Research Centre, Department of Mechanical, Aerospace and Manufacturing Engineering, UMIST, Manchester, M60 1QD, U.K., Zhu Liu, Corrosion and Protection Centre, UMIST, Manchester M60 1QD, U.K., Lin Li, Laser Processing Research Centre, Department of Mechanical, Aerospace and Manufacturing Engineering, UMIST, Manchester, M60 1QD, U.K., *on leave from National University of Sciences and Technology (NUST), Pakistan
- N/PII.10** CORROSION BEHAVIOUR OF LASER MELTED MAGNESIUM ALLOYS
G. Abbas*, Laser Processing Research Centre, Department of Mechanical, Aerospace and Manufacturing Engineering, UMIST, Manchester, M60 1QD, U.K., Zhu Liu, and P. Skeldon, Corrosion and Protection Centre, UMIST, Manchester, M60 1QD, U.K. and Lin Li, Laser Processing Research Centre, Department of Mechanical, Aerospace and Manufacturing Engineering, UMIST, Manchester, M60 1QD, U.K., *on leave from National University of Sciences and Technology (NUST), Pakistan
- N/PII.11** FREE ELECTRON LASER SURFACE PROCESSING OF TITANIUM IN NITROGEN ATMOSPHERE
E. Carpene(a), M. Shinn(b), P. Schaaf(a), (1)Universität Göttingen, Zweites Physikalisches Institut, Tammannstrasse 1, 37077 Göttingen, Germany, (b)Thomas Jefferson National Laboratory, Free Electron Laser Group, Newport News VA 23606, USA
- N/PII.12** ENHANCED PAINT-SUBSTRATE ADHESION IN LASER-IRRADIATED MAGNESIUM ALLOY SURFACES
P. Mosaner, A.Miotello, Dipartimento di Fisica, Università di Trento, 38050 Povo (Trento), Italy, P.L. Bonora, Dipartimento di Ingegneria dei Materiali, Università di Trento, 38050 Mesiano (Trento), Italy
- N/PII.13** SURFACE LASER-GLAZING OF PLASMA SPRAYED THERMAL BARRIER COATINGS
C. Batista, A. Portinha, R.M. Ribeiro, V. Teixeira, M.F. Costa, F. Macedo, University of Minho, Physics Department, Campus de Gualtar, 4710-057 Braga, Portugal, C.R. Oliveira, IDIT - Instituto de Desenvolvimento Inovação Tecnológica, 4520-102 Santa Maria da Feira, Portugal and Universidade Lusíada, 4760-108 Vila Nova de Famalicão, Portugal
- N/PII.14** EFFECTS OF LASER RADIATION ON DYED TEXTILE MATERIALS
A.C. Barone, F. Bloisi, L. Vicari, M. Zoncheddu, INFN - Istituto Nazionale per la Fisica della Materia, Dipartimento di Scienze Fisiche, Università "Federico II" di Napoli, G. Gentile, E. Martuscelli, CAMPEC s.c.r.l., Italy
- N/PII.15** MICROSTRUCTURE CHARACTERISATION AND PROCESS OPTIMIZATION OF LASER ASSISTED RAPID FABRICATION OF 316L STAINLESS STEEL
J. Dutta Majumdar(a), A. J. Pinkerton(a), Z. Liu(b), I. Manna(c) and L. Li(a), (a)Department of Mechanical, Aerospace and Manufacturing Engineering, LPRC, UMIST, P.O. BOX 88, Manchester M60 1QD, U.K., (b)Centre for Corrosion and Corrosion Protection, UMIST, P.O. BOX 88, Manchester M60 1QD, U.K., (c)Department of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur-721302, India
- N/PII.16** A 3-D DYNAMIC MESOSCOPIC MODEL OF DENTAL ENAMEL UNDER CO2 PULSED IRRADIATION
A. Vila Verde, Marta M.D. Ramos, University of Minho, Department of Physics, Campus de Gualtar, 4710-057 Braga, Portugal, Marshall Stoneham, Department of Physics and Astronomy, University College London, Gower Street, London WC1E 6BT, U.K.
- N/PII.17** PORPHYRIN NANORODS AS MIMICS OF ROD-LIKE B-CHL AGGREGATES
P.A.J. de Witte(a), R. Koehorst(c), H. van Amerongen(c), R.J.M. Nolte(b), A.E. Rowan(b), (a)Laboratoire de Nanochimie, Institut de Science et d'Ingénierie Supramoléculaires, Université Louis Pasteur, 8 allée Gaspard Monge, 67083 Strasbourg, France, (b)NSRIM, University of Nijmegen, Toernooiveld 1, 6525ED Nijmegen, The Netherlands, (c)Laboratory of Biophysics, Wageningen university, Dreijenlaan 3, 6703 HA Wageningen, The Netherlands

- N/PII.18** TANTALUM LASER ALLOYING OF THE CARBON STEEL
Woldan, S. Kaç, J. Kusiński, AGH University of Science and Technology, Faculty of Metallurgy and Materials Science, 30 Mickiewicza Ave., 30-059 Cracow, Poland
- N/PII.19** LASER MICRO DRILLING IN SEMICONDUCTOR DEVICE PROCESSING
O. Krüger, J. Würfl, G. Tränkle, Ferdinand-Braun- Institut für Höchstfrequenztechnik, Albert-Einstein-Str. 11, 12489 Berlin, Germany
- N/PII.20** CHARACTERIZATION AND PERFORMANCE OF LASER-TREATED 3Cr12 STEELS
P.H. Chong, Z. Liu and P. Skeldon, Corrosion and Protection Centre, University of Manchester Institute of Science and Technology, P.O. Box 88, Manchester M60 1QD, U.K.
- N/PII.21** INFLUENCE OF COMPOSITIONAL MICROSEGREGATION ON THE PITTING CORROSION BEHAVIOUR OF Al 2014 ALLOY
P.H. Chong(a), Z. Liu(a), P. Skeldon(a) and G. E. Thompson(a), Philip Crouse(b), (a)Corrosion and Protection Centre, (b)Laser Processing Research Centre, Department of Mechanical, Aerospace and Manufacturing Engineering, University of Manchester Institute of Science and Technology, P.O. Box 88, Manchester M60 1QD, U.K.
- N/PII.22** EMPLOYMENT OF A HIGH POWER DIODE LASER FOR ALLOYING THE X40CRMOV5-1 STEEL SURFACE LAYER WITH TUNGSTEN CARBIDE
L.A. Dobrzalski, M. Bonek, E. Hajduczek, Institute of Engineering Materials and Biomaterials, Faculty of Mechanical Engineering, Silesian University of Technology, ul. Konarskiego 18a, 44-100 Gliwice, Poland, A. Klimpel Department of Welding, Faculty of Mechanical Engineering, Silesian University of Technology, ul. Konarskiego 18a, 44-100 Gliwice, Poland
- N/PII.23** CARBON FIBER REINFORCED PLASTIC CO₂ LASER MACHINING
A.J. García(a), E. Ribera(b), M.P. Villar(a), D. Araújo(a), R. García(a), (a)Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica y Química Inorgánica, Universidad de Cádiz, 11510 Puerto Real, Cádiz, Spain, (b)Laser Engineering-Metallurgy Center , Applus Certification Technological Center, Campus UAB, 08193 Bellaterra, Barcelona, Spain
- N/PII.24** WITHDRAW
- N/PII.25** MULTIPLEXED AND COLOR-TUNABLE ORGANIC DFB LASERS
M. Weinberger, G. Langer, A. Pogantsch, K.F. Iskra, W. Kern, Graz University of Technology, 8010 Graz, Austria, and D. Wright, E. Brasselet, J. Zyss, Ecole Normale Supérieure de Cachan (LPQM / Institut d'Alembert, 94235 Cachan, France
- N/PII.26** MICROSTRUCTURE AND MECHANICAL PROPERTIES OF HOT -WORKING TOOL STEEL WITH PVD COATINGS AND DUPLEX LASER SURFACE TREATMENT
M. Adamiak, Silesian University of Technology, Konarskiego St. 18a, 44-100 Gliwice, Poland, P. Panjan, Josef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia, D. Caceres, University Carlos III of Madrid, Avd. de la Universidad 30, 28911 Leganes (Madrid), Spain
- N/PII.27** LASER CLEANING : AN ALTERNATIVE METHOD FOR REMOVING OIL-SPILL FUEL RESIDUES
M. Mateo, G. Nicolás, V. Piñon, A. Ramil and A. Yáñez, Laboratorio de Aplicaciones Industriales del Láser, Centro de Investigaciones Tecnológicas, Universidad de A Coruña, C/ Mendizábal s/n, 15403 Ferrol, Spain
- N/PII.28** METHODS OF CONTROL AND EVALUATION OF LASER PAINTING REMOVAL PROCESS IN NAVAL SECTOR
G. Nicolás, M. Mateo, V. Piñon, A. Ramil and A. Yáñez, Laboratorio de Aplicaciones Industriales del Láser, Centro de Investigaciones Tecnológicas, Universidad de A Coruña, C/ Mendizábal s/n, 15403 Ferrol, Spain
- N/PII.29** LASER CLEANING OF ANCIENT TEXTILES
Romina Belli, Paolo Mosaner and Antonio Miotello, Dipartimento di Fisica, Università di Trento and INFM, 38050 Povo (TN) Italy

Thursday, May 27, 2004

Morning

Session VI: Surface treatment

Session chair: Thomas Lippert

- N-VI.1** 08:30 -Invited- UV LASER INDUCED SURFACE MICROSTRUCTURES IN CONGRUENT LITHIUM NIOBATE SINGLE CRYSTALS
S. Mailis, C.L. Sones, R.W. Eason, Optoelectronics Research Centre, University of Southampton, Southampton SO17 1BJ, U.K.
- N-VI.2** 09:00 -Invited- LASER INTERACTION IN SOL-GEL BASED MATERIALS – 3-D LITHOGRAPHY FOR PHOTONIC APPLICATIONS
R. Houbertz, Fraunhofer ISC, Neunerplatz 2, 97082 Würzburg, Germany
- N-VI.3** 09:30 STUDIES OF UV LASER MODIFICATION OF PMMA FOR DIFFRACTIVE OPTICAL ELEMENT FABRICATION
Richard Winfield and Martin Meister, NMRC, Lee Maltings, Prospect Row, Cork, Ireland
- N-VI.4** 09:45 EFFICIENT LIGHT-INDUCED CHARGE SEPARATION IN TITANIUM OXIDE GELS
A. Kuznetsov(a,b), O. Kameneva(a,c), A. Alexandrov(b), L. Smirnova(c), N. Bityurin(b), K. Chhor(a), P. Marteau(a) and A. Kanaev(a), (a)Laboratoire d'Ingénierie des Matériaux et des Hautes Pressions, URP1311 CNRS, 93430 Villetaneuse, France, (b)Institute of Applied Physics RAS, 603950 Nizhnii Novgorod, Russia, (c)Lobachevskii State University, 603950 Nizhnii Novgorod, Russia
- N-VI.5** 10:00 LASER INTERFERENCE PATTERNING OF THIN OXIDE FILMS DEPOSITED BY CHEMICAL VAPOUR DEPOSITION
Hao Shen, Vladimir Sivakov, Christian Petersen and Sanjay Mathur, Leibniz-Institute of New Materials, Building 43A, Saarland University Campus, 66123 Saarbruecken, Germany, Claus Daniel and Frank Mücklich, Department for Materials Science, Functional Materials, Saarland University, 66041 Saarbruecken, Germany
- N-VI.6** 10:15 PROPERTIES OF ZnO THIN FILMS PREPARED BY RADIOFREQUENCY BEAM ASSISTED LASER ABLATION
N. Scarisoreanu(a), D.G. Matei(a), G. Dinescu(a), G. Epurescu(a), C. Ghica(b), L.C. Nistor(b), M. Dinescu(a), (a)National Institute for Laser, Plasma and Radiation Physics, PO Box MG-16 Magurele, 077125 Bucharest, Romania, (b)National Institute for Materials Physics, PO Box MG-7 Magurele, 077125 Bucharest, Romania
- 10:30 **BREAK**

Session VII: Surface treatment

Session chair: Valentin Craciun

- N-VII.1** 11:00 -Invited- PHOTOPHYSICAL PROCESSES IN THE PULSED UV NANOSECOND LASER EXPOSURE OF PHOTOSTRUCTURABLE GLASS CERAMIC MATERIALS
F. Livingston, P. Adams and **H. Helvajian**, Space Materials Laboratory, The Aerospace Corporation, Los Angeles CA 90009, USA
- N-VII.2** 11:30 -Invited- LASER DOPING FOR MICRO- AND NANOELECTRONICS
T. Sarnet(a), G. Kerrien(a), D. Débarre(a), J. Boulmer(a), H. Akhouayri(b), C. Laviro(c), D. Camel(c), J.-L. Santailier(c), M. Hernandez(d), J. Venturini(d), (a)IEF, Bât. 220, Université Paris-Sud, 91405 Orsay Cedex, France, (b)Institut Fresnel, D.U. St Jérôme, 13397 Marseille cedex 20, France, (c)CEA - LETI, 17 avenue des Martyrs, 38054 Grenoble Cedex 9, France, (d)SOPRA, 26 rue Pierre Joigneaux, 92270 Bois Colombes, France
- N-VII.3** 12:00 STUDY OF LASER CRYSTALLIZATION AND RECORDING PROPERTIES OF OXYGEN DOPED GeSbTe FILMS
C. Rivera-Rodríguez, E. Prokhorov, Y. Kovalenko, E. Morales-Sánchez, J. González-Hernández, CINVESTAV del IPN, Queretaro, Juriquilla 76230, Mexico
- N-VII.4** 12:15 COMBINATORIAL EXPERIMENT IN NI-TI THIN FILMS BY LASER INTERFERENCE STRUCTURING
K.W. Liu, C. Gachot, P. Leibenguth and F. Mücklich, Functional Materials, Department of Materials Science, Saarland University, 66041 Saarbrücken, Germany
- N-VII.5** 12:30 ELECTRON-HOLE RELAXATION THROUGH OPTICAL-PHONON EMISSION IN CdTe/ZnTe QUANTUM DOTS
S. Cronenberger, Y. Viale, O. Crégut, M. Gallart, B. Hönerlage, P. Gilliot, Institut de Physique et Chimie des Matériaux de Strasbourg-GONLO, UMR7504 CNRS-Université Louis Pasteur (Strasbourg I), 23 rue du Loess, B.P.43, 67034 Strasbourg Cedex 2, France
- 12:45 **LUNCH**

Films and nanoparticles properties and irradiation by laser

Session chairs: Chantal Leborgne, Salvatore Amoruso, David B. Geohegan, Wolfgang Kautek

- N/PIII.01** LASER DENSIFICATION OF TiO₂ FILMS PREPARED BY AEROSOL ASSISTED VAPOUR DEPOSITION
Yiquan Wu(a), Kwang-Leong Choy(b), Larry L Hench(a), (a)Department of Materials, Imperial College London, London SW7 2AZ, U.K., (b)School of Mechanical, Materials, Manufacturing Engineering and Management, University of Nottingham, University Park NG7 2RD, U.K.
- N/PIII.02** MICRO-SCALE AND NANO-SCALE INVESTIGATIONS OF PZT SOL-GEL FILMS TREATED BY LASER RADIATION
 M. Knite, G. Mezinskis, I. Yuchnevicha, Riga Technical University, 14 Azenes St., Riga 1048, Latvia and K. Kundzins, University of Latvia, 8 Kengaraga St., Riga 1063, Latvia
- N/PIII.03** PULSED LASER ANNEALING OF CuInGaSe BASED THIN FILM SOLAR CELL
 S. Rawal, J.M. Howard, V. Craciun, R.K. Singh, Materials Science and Engineering, University of Florida, Gainesville FL, USA, X. Wang, Lei Li, O.D. Crisalle, T.J. Anderson, Chemical Engineering, University of Florida, Gainesville FL, USA, S. S. Li, C.H. Huang, Electrical Engineering, University of Florida, Gainesville FL, USA
- N/PIII.04** CHARACTERISTICS OF LaB₆ THIN FILMS GROWN BY PULSED LASER DEPOSITION FOR FIELD EMISSION APPLICATIONS
V. Craciun, Materials Science and Engineering, University of Florida, Gainesville FL, USA, N.D. Bassim Naval Research Laboratory, Washington DC, USA, D. Craciun, National Institute for Laser, Plasma and Radiation Physics, Bucharest, Romania, V. Mammana, International Technology Center, Research Triangle Park NC, USA
- N/PIII.05** FAST THIRD-ORDER OPTICAL NONLINEARITIES IN METAL ALLOY NANOCCLUSERS COMPOSITE GLASS: NEGATIVE SIGN OF THE NONLINEAR REFRACTIVE INDEX
E. Cattaruzza, G. Battaglin, F. Gonella, R. Polloni and B.F. Scemini, INFN, Dipartimento di Chimica Fisica, Università Ca' Foscari di Venezia, Dorsoduro 2137, 30123 Venezia, Italy, G. Mattei and P. Mazzoldi, INFN, Dipartimento di Fisica, Università degli Studi di Padova, via Marzolo 8, 35131, Padova, Italy
- N/PIII.06** TEMPERATURE DEPENDENCE OF THE OPTICAL PROPERTIES OF ZnSe FILMS DEPOSITED ON QUARTZ SUBSTRATE
G. Perna(a,b), V. Capozzi(a,b), P.F. Biagi(b,c), A. Minafra(b,c), M. Ambrico(d), (a)Dipartimento di Scienze Biomediche, Università di Foggia, Viale Pinto, 71100 Foggia, Italy, (b)Istituto Nazionale di Fisica della Materia, Sezione di Bari, Via Amendola 173, 70126 Bari, Italy, (c)Dipartimento Interateneo di Fisica dell'Università di Bari, Via Amendola 173, 70126 Bari, Italy, (d)Istituto di Metodologie Inorganiche e dei Plasmi del C.N.R., Via Orabona 4, 70126 Bari, Italy
- N/PIII.07** LASER-INDUCED EPITAXIAL RECRYSTALLIZATION OF ION IMPLANTED QUARTZ
 S. Gasiorok, S. Dhar, K.-P. Lieb, P. Schaaf, Universität Göttingen, II. Physikalisches Institut, Tammannstrasse 1, 37077 Göttingen, Germany
- N/PIII.08** CHEMICAL CHANGES INDUCED IN SODIUM TETRABORATE BY LASER IRRADIATION IN REACTIVE ATMOSPHERE
P. Mosaner, M. Bonelli, G. Guella and A. Miotello, Dipartimento di Fisica, Università di Trento, 38050 Povo (Trento) Italy
- N/PIII.8** OPTICAL AND STRUCTURAL PROPERTIES OF In₂O₃ THIN FILMS PRODUCED BY PULSED LASER DEPOSITION
 T.J. Stanimirova, P.A. Atanasov, A. Og. Dikovska, and N.E. Stankova, Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko Shose Blvd., Sofia 1784, Bulgaria, S.H. Tonchev, Institute of Solid State Physics, Bulgarian Academy of Sciences, 72 Tsarigradsko Shose Blvd., Sofia 1784, Bulgaria
- N/PIII.10** STRUCTURAL AND OPTICAL PROPERTIES OF TUNGSTEN OXIDE THIN FILMS GROWN BY LASER DEPOSITION
 N.E. Stankova, P.A. Atanasov, T.J. Stanimirova, and A.Og. Dikovska, Institute of Electronics, Bulgarian Academy of Sciences, 72 Tsarigradsko shose, Sofia 1784, Bulgaria, R.W. Eason, Optoelectronics Research Centre, University of Southampton, Southampton SO17 1BJ, U.K.
- N/PIII.11** 30-FS LASER TREATMENT OF DOPED PMMA, TUNGSTEN, AND TITANIUM
J. Krüger, S. Martin, W. Kautek, Lab. for Thin Film Technology, Fed. Inst. for Materials Research and Testing, Unter den Eichen 87, 12205 Berlin, Germany and T. Lippert, Department of General Energy Research, Paul Scherrer Institute, 5232 Villigen PSI, Switzerland
- N/PIII.12** PHOTOLUMINESCENCE CHARACTERIZATION OF PURE AND SM³⁺-DOPED THIN METALOXIDE FILMS
V. Kiisk(a), I. Sildos(a), S. Lange(a), V. Reedo(a), T. Tätte(a), M. Kirm(b) and J. Aarik(a) (a)Institute of Physics, University of Tartu, Riia 142, 51014 Tartu, Estonia, (b)Institut für Experimentalphysik der Universität Hamburg, Luruper Chaussee 149, 22 761 Hamburg, Germany
- N/PIII.13** LASER-INDUCED MODIFICATION OF NANOPARTICLES FORMED BY LASER ABLATION TECHNIQUE IN LIQUIDS
 N. Burakov, N.V. Tarasenko, A.V. Butsen, M.I. Nedelsko, Institute of Molecular and Atomic Physics, National Academy of Sciences of Belarus, 70 Scaryna Ave., 220072 Minsk, Belarus

- N/PIII.14** INFLUENCE OF NICKEL PERCENTAGE ON PICOSECOND LASER-INDUCED ELECTRON EMISSION FROM NANOSTRUCTURED CARBON-BASED FILMS CONTAINING NICKEL PARTICLES
D. Vouagner(a), E. Czerwosz(b,c), J.P. Girardeau-Montaut(a), (a)Laboratoire de Sciences et Ingénierie des Surfaces, Université Claude Bernard, Lyon I, 43 bd du 11/11/1918, 69622 Villeurbanne Cedex, France, (b)Institute of Experimental Physics, Warsaw University, Poland, (c)Institute of Vacuum Technology, Warsaw, Poland
- N/PIII.15** DIRECT MEASUREMENT OF ABSORBANCE OF RESISTS FOR 13 nm LITHOGRAPHY BY USING 157 nm LASER ABLATION AND AFM
 Z. Kollia, E. Sarantopoulou, A.C. Cefalas, National Hellenic Research Foundation, TPCI, 48 Vassileos Constantinou Avenue, 11635 Athens, Greece
- N/PIII.16** AMORPHOUS TO CRYSTALLINE PHASE TRANSITION IN PULSED LASER DEPOSITED SILICON CARBIDE M. Tabbal, A. Said, T.C. Christidis, American University of Beirut, Lebanon
- N/PIII.17** MORPHOLOGICAL AND STRUCTURAL CHARACTERIZATION OF CrO₂/Cr₂O₃ FILMS GROWN BY LASER-CVD
P.M. Sousa(a), A.J. Silvestre(b), N. Popovici(a) and O. Conde(a), (a)Dep. Fisica, Universidade de Lisboa, 1749-016 Lisboa, Portugal, (b)Instituto Superior de Engenharia de Lisboa, 1949-014 Lisboa, Portugal
- N/PIII.18** PHOTO-STIMULATED OXIDATION OF HAFNIUM ON SILICON WITH EXCIMER ULTRAVIOLET SOURCES
Z.M. Wang(a), G. He(b), J.-Y. Zhang(a), Q. Fang(b,c), Ian W. Boyd(c), (a)Structure Research Laboratory, University of Science and Technology of China, Hefei 230026, P.R. China, (b)Institute of Solid State Physics, Chinese Academy of Science, Hefei 230031, P.R. China, (c)Electronic and Electrical Engineering, University College London, Torrington Place, London WC1E 7JE, U.K.
- N/PIII.19** ANATASE PHASE TiO₂ THIN FILMS GROWN BY PULSED LASER DEPOSITION
E. György(a), E. Axente(a), I.N. Mihailescu(a), C. Ducu(b), (a)Lasers Department, Institute of Atomic Physics, P.O. Box MG 54, 76900 Bucharest, Romania, (b)University of Pitesti, Romania
- N/PIII.20** LASER PROCESSING AND CHARACTERIZATION OF ZnS-Cu THIN FILM
 V.S. Khomchenko, V.E. Rodionov, L.L. Fedorenko, G.S. Svechnikov, L.V. Zavyalova, M.M. Rochina, YuYu. Bacherikov, P.M. Lytvyn, N.M. Yusupov, Institute of Semiconductor Physics, NAS of Ukraine, 45, Prospect Nauky, 03028 Kiev, Ukraine
- N/PIII.** ELECTRON-HOLE RELAXATION THROUGH OPTICAL-PHONON EMISSION IN CdTe/ZnTe QUANTUM DOTS
S. Cronenberger, Y. Viale, O. Crégut, M. Gallart, B. Hönerlage, P. Gilliot, Institut de Physique et Chimie des Matériaux de Strasbourg-GONLO, UMR7504 CNRS-Université Louis Pasteur (Strasbourg I), 23 rue du Loess, B.P.43, 67034 Strasbourg Cedex 2, France
- N/PIII.21** PHASE CHANGE DYNAMICS IN A POLYMER THIN FILM UPON FEMTOSECOND AND PICOSECOND IRRADIATION BELOW AND ABOVE THE ABLATION THRESHOLD
 S.M. Wiggins, J. Bonse, and J. Solis, Instituto de Optica, C.S.I.C., Serrano 121, Madrid 28006, Spain, T. Lippert, Paul Scherrer Institut, 5232 Villigen PSI, Switzerland
- N/PIII.22** KrF EXCIMER LASER IRRADIATION-INDUCED CHANGES IN THE SURFACE COMPOSITION OF A BORON CARBIDE TARGET
T. Szörényi, Research Group on Laser Physics, PO Box 406, 6701 Szeged, Hungary, J. Faerber, IPCMS-GSI, UMR 7504 CNRS, BP 20, 67037 Strasbourg Cedex 2, France, F. Antoni and E. Fogarassy, CNRS-PHASE, BP 20, 67037 Strasbourg Cedex 2, France
- N/PIII.23** ETCHING OF CHALCOGENIDE THIN FILMS – COMPARISON BETWEEN FEMTOSECOND AND PICOSECOND LASER ABLATION
David Ruthe and Klaus Zimmer, Leibniz-Institut für Oberflächenmodifizierung e.V., Permoserstrasse 15, 04315 Leipzig, Germany Thomas Höche, 3D-Micromac AG, Max-Planck-Strasse 22b, 09114 Chemnitz, Germany
- N/PIII.24** THE WETTABILITY MODIFICATION OF BIO-GRADE STAINLESS STEEL IN CONTACT WITH SIMULATED PHYSIOLOGICAL LIQUIDS BY THE MEANS OF LASER IRRADIATION
 L. Hao, Y.F. Phua, M.W. Koo, J. Lawrence and L. Li*, Manufacturing Engineering Division, School of Mechanical & Production Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798. *Laser Processing Research Centre, Department of Mechanical Aerospace and Manufacturing Engineering, University of Manchester Institute of Science and Technology, Manchester M60 1QD, U.K.
- N/PIII.25** WITHDRAW
- N/PIII.26** LASER MICROSTRUCTURING OF SOL-GEL COATINGS FOR MEDICAL FIBEROPTIC APPLICATORS
H. Podbielska(a,b), A. Ulatowska-Jarca(a,b), J. Bauer(a), I. Holowacz(a), (a)Bio-Optics Group, Institute of Physics, Wrocław University of Technology, Wybrzeże Wyspińskiego 27, 50-370 Wrocław, Poland, (b)Institute of Optics, Technical University Berlin, Strasse des 17 Juni 135, 10623 Berlin, Germany
- N/PIII.27** STRUCTURAL SURFACE ANALYSIS OF SmBaCuO THIN FILM BY PULSED LASER DEPOSITION
 A. Morone and Luca Medici, CNR-IMIP, Sezione di Potenza, Zona Industriale di Tito Scalo, Italy, CNR-IMAA, Zona Industriale di Tito Scalo, Italy
- N/PIII.28** TAILORED FILM PROPERTIES AND SURFACE MORPHOLOGY OF GE CONTAINING FILMS THROUGH ArF EXCIMER LASER ASSISTED GROWTH
 E. López, S. Chiussi, P. González, J. Serra, *C. Serra, B. León, Dpto. Física Aplicada, *CACTI, Universidade de Vigo, Lagoas-Marcosende 9, 36200 Vigo, Spain, U. Kosch, FH-O/o/W- Emden, FB Technik, Constantiaplatz, 26723 Emden, Germany, F. Fabbri, L. Fornarini, ENEA Frascati, Via E. Fermi 27, 00044 Frascati (Roma), Italy

- N/PIII.29** NANOSCALE EVALUATION OF LASER-BASED SURFACE TREATED 12Ni MARAGING STEEL
J. Grum, J.M. Slabe, Faculty of Mechanical Engineering, Aškerzeva 6, 1000 Ljubljana, Slovenia
- N/PIII.30** CONDUCTIVITY AND PROTECTIVE PROPERTIES OF La_{0.8}Sr_{0.2}Mn_{0.5}Co_{0.5}O₃ FILMS PRODUCED BY PULSED LASER
N. Pryds, B. Toftmann, J. Schou, P.V. Hendriksen, S. Linderoth, Risø National Laboratory, 4000 Roskilde, Denmark
- N/PIII.31** (Zr,Sn)TiO₄ THIN FILMS FOR APPLICATION IN ELECTRONICS
M. Nistor, F. Gherendi, M. Magureanu, N.B. Mandache, National Institute for Lasers, Plasma and Radiation Physics, Bucharest-Magurele, A. Ioachim, M.G. Banciu, L. Nedelcu, National Institute of Materials Physics, Bucharest-Magurele, H.V. Alexandru, University of Bucharest, Romania
- N/PIII.32** LASER SURFACE TREATMENT FOR INHIBITION OF METAL DUSTING
K.T. Voisey, Z. Liu and F.H. Stott, Corrosion and Protection Centre, UMIST, Manchester, U.K.
- N/PIII.33** CRYSTALLIZATION OF HYDROGENATED AMORPHOUS SILICON-CARBON FILMS BY MEANS OF LASER TREATMENTS
G. Ambrosone(a), U. Coscia(a), S.Lettieri(a), P.Maddalena(a), C. Minarini(b), (a)INFN-Dipartimento di Scienze Fisiche, Complesso Universitario di Monte S. Angelo, via Cintia, 80126 Napoli, Italy, (b)ENEA Research Center - Loc. Granatello, 80055 Portici, Napoli, Italy
- N/PIII.34** A STRUCTURAL ANALYSIS OF ZnMO (M=Co, Mn) EPILAYERS DEPOSITED BY PULSED LASER ON ZnO (00.-1) SUBSTRATE
Y. Zheng, D. Demaille, J.C. Boulliard and J.F. Pétrouff, Laboratoire de Minéralogie – Cristallographie, Universités Pierre et Marie Curie (Paris VI) et Paris VII, CNRS UMR 7590, Case 115, 4 place Jussieu, 75252 Paris Cedex 05, France
- N/PIII.35** MICROSCOPIC PROPERTIES OF NITI FILMS PRODUCED BY PLD
A. Camposeo, F. Fusco, M. Allegrini, E. Arimondo, INFN, Dipartimento di Fisica E. Fermi, Università di Pisa, via F. Buonarroti 2, 56127 Pisa Italy, A.Tuissi, IENI/CNR, Sezione di Lecco, Corso Promessi Sposi 29, 22053 Lecco, Italy
- N/PIII.36** LASER IMPACT INDUCED ISOMERISATION ORIENTED CIS-POLYACETYLÈNE AS STUDIED BY RAMAN SPECTROSCOPY
A. Djebaili, Laboratoire d'Etude des Matériaux Polymères; L. Nasri, Faculty of science, University of Khenchela, Algeria; M. Belloum, Department of Chemistry, University of Batna; Z. Skanderi, Laboratoire d'Etude des Matériaux Organiques; M.J.M. Abadie, Laboratoire d'étude des matériaux organique, France
- N/PIII.37** CREATION OF PERIODIC NANOSCALE STRUCTURES ON SEMICONDUCTOR SURFACE BY COHERET LASER BEAMS
O.Yu. Semchuk and R.V. Bila, Institute of Surface Chemistry NAS of Ukraine, 03164 Kyiv, Ukraine, M. Willander and M. Karlsteen, Chalmers University of Technology and Goteborg University, 41296 Goteborg, Sweden
- N/PIII.38** EFFECT OF SUB-MICROMETER POLYMER GRATINGS GENERATED BY TWO BEAM-INTERFERENCE ON SURFACE PLASMON RESONANCE
M. Csete, J. Kokavecz, V. Megyesi, Zs. Bor, Department of Optics and Quantum Electronics, University of Szeged, Dóm tér 9, Szeged, Hungary, M. Goncalves, M. Pietralla and O. Marti, Department of Experimental Physics, University of Ulm, Albert Einstein Allee 11, 89069 Ulm, Germany
- N/PIII.39** PROPERTIES OF CALCIUM PHOSPHATE COATINGS OBTAINED BY LASER CLADDING
F. Lusquiños, J. Pou, M. Boutinguiza, R. Soto, B. León, M. Pérez-Amor, University of Vigo, Spain
- N/PIII.40** HOLOGRAPHIC RECORDING OF SUBWAVELENGTH STRUCTURES IN AMORPHOUS CHALCOGENIDE THIN FILMS
Janis Teteris, Mara Reinfelds and Ilona Kuzmina Institute of Solid State Physics, University of Latvia, 8 Kengaraga Str., 1063 Riga, Latvia
- N/PIII.41** KINETIC OF ORIENTED CIS- POLYACETYLÈNE AND ISOMERISATION INDUCED BY LASER IMPACT, SHOWN BY MULTICHANNEL RAMAN SPECTROSCOPY
A. Djebaili, Laboratoire d'Etude des Matériaux Polymères, M.S. Khiereddine, Department of Mecanic, University of Batna, Z. Skanderi, Laboratoire d'Etude des Matériaux Organiques, V. Tabacik, Laboratoire d'étude des matériaux organique, France, M.J.M. Abadie, Laboratoire d'étude des matériaux organique, France
- N/PIII.42** PHOTOEMISSION ELECTRON MICROSCOPY OF THIN AG CONTINUOUS AND CLUSTER FILMS USING FS-LASER EXCITATION
A. Gloskovskii, D.A. Valdaitsev, M. Cinchetti, S.A. Nepijko, G. Fecher and G. Schönhense, Institute of Physics, University of Mainz, 55099 Mainz, Germany
- N/PIII.43** COMBINATORIAL ANALYSES FOR OXYGEN CONTENT DETERMINATION IN LASER TREATED TITANIUM TARGETS
L. Lavisse, Ltm laboratory, IUT, 71100 Chalon sur Saône, France, C. Langlade, LTDS laboratory, Ecole Centrale de Lyon, 69134 Ecully, France and P. Berger, E. SUË laboratory, Saclay, France
- N/PIII.44** LIGHT AMPLIFICATION IN ZINC OXIDE FILMS AND LAYERED STRUCTURES
A. Stassinopoulos(a), R. N. Das(b), E.P. Giannelis(b), S.H. Anastasiadis(a), D. Angelos(a), (a)Institute of Electronic Structure and Laser, Foundation for Research and Technology-Hellas, Heraklion, Crete, Greece, (b)Department of Materials Science and Engineering, Cornell University, Ithaca NY 14853, USA

N/PIII.45 COBALT DOPED ZnO: A ROOM TEMPERATURE DILUTE MAGNETIC SEMICONDUCTOR
C.B. Fitzgerald, M. Venkatesan, J.G. Lunney and J.M.D. Coey, Physics Dept, Trinity College, Dublin 2, Ireland

16:00 **BREAK**

Session VIII: New sources and applications

Session chair: Wolfgang Kautek

- N-VIII.1** 16:30 -Invited- A NOVEL FS-LIGHT NANOSOURCE AND ITS APPLICATIONS
M. Labardi, M. Allegrini, Istituto Nazionale per la Fisica della Materia, Dipartimento di Fisica, Università di Pisa, Via Buonarroti 2, 56127 Pisa, Italy, M. Zavelani-Rossi, D. Polli, G. Cerullo, S. De Silvestri, O. Svelto, National Laboratory for Ultrafast and Ultraintense Optical Science, Istituto Nazionale per la Fisica della Materia, Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche, Dipartimento di Fisica, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy
- N-VIII.2** 17:00 -Invited- NOVEL APPLICATIONS OF SHORT AND ULTRA-SHORT LASER PULSES TO GASES, LIQUIDS AND SOLIDS
Ernst Wintner, Technische Universität Wien, Institut für Photonik, Wien, Austria
- N-VIII.3** 17:30 FEMTOSECOND LASER DRIVEN SHOCK QUENCHING OF THE HIGH-PRESSURE PHASE OF IRON
Tomokazu Sano(a), Hiroaki Mori(a), Osami Sakata(b), Etsuji Ohmura(a), Isamu Miyamoto(a) and Kojiro F. Kobayashi(a), (a) Graduate School of Engineering, Osaka University, 2-1 Yamada-Oka, Suita, Osaka 565-0871, Japan, (b) Materials Science, Japan Synchrotron Radiation Research Institute, SPring-8, Kouto, Mikazuki, Sayo, Hyogo 679-5198, Japan
- N-VIII.4** 17:45 CURRENT TRENDS AT 157 nm LITHOGRAPHY
A.C. Cefalas, National Hellenic Research Foundation, 48 Vas. Constantinou Avenue, Athens 11635, Greece
- N-VIII.5** 18:00 LASERS PRINT BIOMATERIALS
I. Zergioti, National Technical University of Athens, Physics Department, Iroon Polytehneiou 9, 15780 Zografou, Athens, Greece, A. Karaiskou, D.G. Papazoglou, C. Fotakis, Foundation for Research & Technology – Hellas, Institute of Electronic Structure and Laser, P.O. Box 1527, Heraklion 71110, Greece, M. Kapsetaki, D. Kafetzopoulos, Foundation for Research & Technology – Hellas, Institute of Molecular Biology and Biotechnology, P.O. Box 1527, Heraklion 71110, Greece
- N-VIII.6** 18:15 WITHDRAW

Friday, May 28, 2004

Morning

Session IX: Laser processing

Session chair: Chantal Leborgne

- N-IX.1** 08:30 -Invited- LASER MANIPULATION OF CLUSTERS, STRUCTURAL DEFECTS AND NANOAGGREGATES IN BARRIER STRUCTURES ON SILICON AND BINARY SEMI-CONDUCTORS
G.I. Vorobets, O.I. Vorobets, V.N. Strebejev, Y.Fed'kovych Chernivtsi National University, Physical Department, 2 Kotsjubynskiy Str., Chernivtsi 58012, Ukraine
- N-IX.2** 09:00 THE MANIPULATION OF THE OSTEOBLAST CELL RESPONSE TO THE Ti-6AL-4V TITANIUM ALLOY USING HIGH POWER DIODE LASER
L. Hao, T.H. Wang, J. Lawrence and L. Li*, Manufacturing Engineering Division, School of Mechanical & Production Engineering, Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798, *Laser Processing Research Centre, Department of Mechanical Aerospace and Manufacturing Engineering, University of Manchester Institute of Science and Technology, Manchester M60 1QD, U.K.
- N-IX.3** 09:15 LASER PRODUCTION AND CHARACTERIZATION OF METAL-BOUND BIOMOLECULES
D. Catone, A. Paladini, D. Scuderi, A. Mele, M. Speranza, A. Giardini, Dipartimento di Chimica, Università di Roma "La Sapienza", 00185 Roma, Italy, M. Satta, CNR-Istituto Materiali Speciali, 85050 Tito Scalo (Pz), Italy
- N-IX.4** 09:30 BIOMIMETIC SURFACE MICROSTRUCTURING OF POLYMERS INDUCED BY LASER INTERFERENCE LITHOGRAPHY
F. Muecklich, M. Engstler, F. Yu, M. Bambach, J. Batal, W. Possart, Department of Materials Science, Saarland University, PO Box 151150, 66041 Saarbrücken, Germany
- N-IX.5** 09:45 -Invited- REACTIVE LASER SYNTHESIS OF CARBIDES AND NITRIDES
P. Schaaf, E. Carpenne, M. Kahle, Universität Göttingen, II. Physikalisches Institut, Tammannstrasse 1, 37077 Göttingen, Germany
- N-IX.6** 10:15 ROLE OF THE LASER INDUCED PLASMA ON THE NITRIDING PROCESS OF STEEL BY LASER
A.-L. Thomann, A. Basillais, M. Wegscheider and N. Semmar, GREMI, CNRS/Université d'Orléans, 14, rue d'Issoudun, BP 6744, F-45067 Orléans cedex2, France, A. Pereira, P. Delaporte, M. Sentis, LP3, CNRS/Université de la Méditerranée, Pôle scientifique de Luminy, 163 avenue de Luminy, C. 917, F-13288 Marseille cedex9, France.
- N-IX.7** 10:30 LASER-ASSISTED STRUCTURING OF CERAMIC AND STEEL SURFACES FOR IMPROVING TRIBOLOGICAL PROPERTIES
S. Schreck, K.-H. Zum Gahr, Forschungszentrum Karlsruhe GmbH, Institute for Materials Research I, PO Box 3640, 76021 Karlsruhe, Germany
- 10:45 **BREAK**

Session X: Laser processing

Session chair: Eric Millon

- N-X.1** 11:15 STUDIES ON LASER BENDING OF STAINLESS STEEL
I. Manna(a), A.K. Nath(b) and J. Dutta Majumdar(a), (a)Dept. of Met. & Mat. Engg., Indian Institute of Technology, Kharagpur – 721302, India, (b)Industrial CO2 Laser Centre, Centre for Advanced Technology, Indore-452 013, India
- N-X.2** 11:30 LASER CLEANING AND STRUCTURING OF TI DENTAL IMPLANTS
S. Tamir and M. Rotel, Israel Institute of Metals, Technion, Haifa, Israel and D. Baruch, MIS-Medical Implant System, Shlomi, Israel
- N-X.3** 11:45 PRELIMINARY INVESTIGATION INTO LASER CLEANING OF TITANIUM ALLOY MATERIAL FOR GAS TURBINE COMPONENT MANUFACTURE
M.W. Turner, M.Sc C.Eng MIMMM C.Chem MRSC, Manufacturing Technology Manager, Rolls-Royce Compression Systems, P.O. Box 3, Barnoldswick, Colne, Lancashire BB18 5RU, U.K.
- N-X.4** 12:00 LASER SYNTHESIS OF AMORPHOUS Si-AL OXIDE NANOWIRES UNDER ATMOSPHERIC CONDITIONS
F. Quintero, J. Pou, F. Lusquiños, M. Boutinguiza, R. Soto and M. Pérez-Amor, Dpto. Física Aplicada, Universidade de Vigo, ETSI Industriales, Lagoas-Marcosende 9, 36200 Vigo, Spain
- N-X.5** 12:15 HEAT AFFECTED ZONE MEASURE OF CO2 LASER MACHINED CARBON FIBER REINFORCED PLASTIC USING NEURAL NETWORKS
A.J. García(a), P. Galindo(b), E. Ribera(c), M.P. Villar(a), D. Araújo(a), R. García(a), (a)Departamento de Ciencia de los Materiales e Ingeniería Metalúrgica y Química Inorgánica, Universidad de Cádiz, 11510 Puerto Real, Cádiz, Spain, (b)Departamento de Lenguajes y Sistemas Informáticos, Universidad de Cádiz, 11510 Puerto Real, Cádiz, Spain (c)Laser Engineering-Metallurgy Center, Applus Certification Technological Center, Campus UAB, 08193 Bellaterra, Barcelona, Spain
- N-X.6** 12:30 ULTRA-HIGH-Q TOROID MICROCAVITIES USING A LASER-ASSISTED REFLOW PROCESS
T.J. Kippenberg, S.M. Spillane, D.K. Armani and K.J. Vahala, California Institute of Technology, Department Applied Physics, Pasadena CA 91125, USA
- 12:45 **LUNCH**