

**ICPEPA-10**

10<sup>th</sup> International Conference  
on Photoexcited Processes  
and Applications

# Programme

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**August 29–September 2, 2016, Brasov, Romania**



## Monday, August 29<sup>th</sup>, 2016

16:00 – 18:00 **Registration**

18:00 – 19:30 **Welcome Reception**

## Tuesday, August 30<sup>th</sup>, 2016

8:00 – 8:30 **Registration**

8:30 – 8:50 **Opening remarks** – Ion N. Mihailescu

### Plenary session – Chairman: Ion N. Mihailescu

8:50 – 9:20 **Optical microscopy: the optical revolution**

Plenary Lecture **V. Westphal, S.W. Hell**

*Max-Planck-Institute of Biophysical Chemistry, Dept. of NanoBiophotonics, Göttingen, Germany*

### Lasers applications 1 – Chairmen: G. Popescu, A. De Giacomo

**Ultrafast Optical Switching in Hybrid Silicon-Vanadium Dioxide Nanophotonic Modulators**

9:20 – 9:45

Invited

**R. F. Haglund Jr.<sup>1</sup>, S. M. Weiss<sup>2</sup>**

<sup>1</sup>*Department of Physics and Astronomy, Vanderbilt University, Nashville, USA*

<sup>2</sup>*Department of Electrical Engineering and Computer Science, Vanderbilt University, Nashville, USA*

**Extreme Light Infrastructure Nuclear Physics (ELI-NP): present status and perspectives**

9:45 – 10:10

Invited

**N. V. Zamfir**

*ELI-NP, Horia Hulubei National Institute for Physics and Nuclear Engineering, Măgurele, Romania*

**Fabrication of metal nanostructures on various dielectric substrates: the effect of thermal diffusivity**

10:10 – 10:25

Oral

**A. Takami<sup>1</sup>, Y. Nakajima<sup>1</sup>, N. Nedyalkov<sup>2</sup>, M. Terakawa<sup>1,3</sup>**

<sup>1</sup>*School of Integrated Design Engineering, Keio University, Yokohama, Japan*

<sup>2</sup>*Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria*

<sup>3</sup>*Department of Electronics and Electrical Engineering, Keio, University, Japan*

**Direct-writing of Cu-Ni micropatterns using femtosecond laser reduction of CuO/NiO nanoparticles**

10:25 – 10:40

Oral

**M. Mizoshiri, J. Sakurai, S. Hata**

*Department of Micro-Nano Systems Engineering, Graduate School of Engineering, Nagoya University, Japan*

10:40 – 11:00 **Coffee break**

### Laser processing 1 – Chairmen: R. F. Haglund Jr., N. V. Zamfir

**Laser induced nanoablation of diamond**

11:00 – 11:25

Invited

**V.I. Konov, V.V. Kononenko**

*A.M. Prokhorov General Physics Institute of RAS, National Research Nuclear University MEPhI, Moscow, Russia*

**Laser processing of low power integrated gas sensors with carbon materials sensing layers**

11:25 – 11:50

Invited

**T. Lippert**

*Energy and Environment Division, Paul Scherrer Institut, 5232 PSI Villigen, Switzerland*

**Pulsed Laser Ablation in Liquid for Nanoparticles production: fundamental aspects and perspectives**

11:50 – 12:15

Invited

**M. Dell'Aglio<sup>2</sup>, A. Santagata<sup>3</sup>, G. Valenza<sup>1</sup>, A. De Giacomo<sup>1,2</sup>**

<sup>1</sup>*Department of Chemistry, University of Bari, Italy*

<sup>2</sup>*National Council of Research-Institute of Nanotechnology, CNR-NANOTEC, Italy*

<sup>3</sup>*National Council of Research-Institute of Matter Structure, CNR-ISM, Italy*



12:15 – 12:30 Oral	<p><b>Laser assisted design of mesoporous carbon with embedded magnetic metal nanoparticles</b></p> <p><b>C. Matei Ghimbeu<sup>1</sup>, M. Sopronyi<sup>2,3</sup>, F. Sima<sup>2</sup>, L. Delmotte<sup>1</sup>, C. Vaultot<sup>1</sup>, C. Zlotea<sup>4</sup>, V. Paul-Boncour<sup>4</sup>, J-M Le Meins<sup>1</sup></b></p> <p><sup>1</sup><i>Institut de Science des Matériaux de Mulhouse, CNRS UMR 7361, Mulhouse, France.</i>  <sup>2</sup><i>Lasers Department, National Institute for Lasers, Plasma and Radiation Physics, Romania</i>  <sup>3</sup><i>University of Bucharest, Faculty of Physics, Magurele, Ilfov, Romania</i>  <sup>4</sup><i>Institut de Chimie et des Matériaux Paris-Est CNRS-UMR 7182, UPEC, Thiais, France</i></p>
12:30 – 12:45 Oral	<p><b>Mechanical and biological properties of multi-doped Diamond-Like Carbon coatings (DLC-Si/Ag) fabricated using modified chemical vapour deposition method</b></p> <p><b>L. Swiatek<sup>1</sup>, A. Olejnik<sup>1</sup>, J. Grabarczyk<sup>1</sup>, A. Jedrzejczak<sup>1</sup>, A. Sobczyk-Guzenda<sup>2</sup>, M. Kaminska<sup>3</sup>, W. Jakubowski<sup>3</sup>, W. Szymanski<sup>3</sup>, D. Bociaga<sup>1</sup></b></p> <p><sup>1</sup><i>Division of Biomedical Engineering and Functional Materials, Lodz University of Technology, Institute of Materials Science and Engineering, Poland</i>  <sup>2</sup><i>Division of coatings engineering and non-metallic materials, Institute of Material Science and Engineering, Lodz University of Technology, Lodz, Poland</i>  <sup>3</sup><i>Division of Biophysics, Institute of Material Science and Engineering Lodz University of Technology, Lodz, Poland</i></p>
12:45 – 13:00 Oral	<p><b>Electronically induced rapid sub-ps structural transitions in tungsten upon ultrafast laser excitation</b></p> <p><b>H. Zhang<sup>1</sup>, C. Li<sup>1,2</sup>, E. Bévilion<sup>1</sup>, J. P. Colombier, R. Stoian<sup>1</sup></b></p> <p><sup>1</sup><i>Laboratoire Hubert Curien, UMR 5516 CNRS, Université de Lyon, Université Jean Monnet, France</i>  <sup>2</sup><i>State Key Laboratory of Transient Optics and Photonics, Xi'an Institute of Optics and Precision Mechanics, Xi'an, China</i></p>
13:00 – 14:00	<b>Lunch</b>
<b>Laser scanning – Chairmen: T. Lippert, R. Stoian</b>	
14:00 – 14:25 Invited	<p><b>Quantitative phase imaging of nanofabricated structures</b></p> <p><b>R. Zhou, C. Edwards, L. Goddard, G. Popescu</b></p> <p><i>Department of Electrical and Computer Engineering, Beckman Institute for Advanced Science and Technology, University of Illinois at Urbana-Champaign, USA</i></p>
14:25 – 14:40 Oral	<p><b>New achievements in laser scanning microscopy based on far field and near field</b></p> <p><b>G. A. Stanciu, C. Stoichita, S. G. Stanciu, D. E. Tranca, R. Hristu</b></p> <p><i>Center for Microscopy-Microanalysis and Information Processing, University Politehnica of Bucharest, Romania</i></p>
14:40 – 14:55 Oral	<p><b>Combinatorial Photocatalyst Screening using Photo-Electrochemical Scanning Droplet Cell Microscopy</b></p> <p><b>A. W. Hassel<sup>1,2</sup>, J. P. Kollender<sup>1,2</sup>, A. I. Mardare<sup>1,2</sup></b></p> <p><sup>1</sup><i>Institute for Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Austria</i>  <sup>2</sup><i>Christian Doppler Laboratory for Combinatorial Oxide Chemistry, Institute for Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Austria</i></p>
14:55 – 15:10 Oral	<p><b>Copper-based thin film combinatorial libraries screening for sensor applications</b></p> <p><b>A. I. Mardare<sup>1,2</sup>, I. Pötzelberger<sup>1</sup>, C. C. Mardare<sup>1,3</sup>, A. W. Hassel<sup>1,2,3</sup></b></p> <p><sup>1</sup><i>Institute for Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Austria</i>  <sup>2</sup><i>CEST Competence Center for Electrochemical Surface Technology, Wiener Neustadt, Austria</i>  <sup>3</sup><i>Christian Doppler Laboratory for Combinatorial Oxide Chemistry, Institute for Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Austria</i></p>
15:10 – 15:35 Invited	<p><b>Lasng out of thin air: Remote sensing using nonlinear optics</b></p> <p><b>A. Dogariu</b></p> <p><i>Mechanical and Aerospace Engineering Department, Princeton University, Princeton, USA</i></p>
15:35 – 17:00	<b>Poster Session 1</b>
17:00 – 17:30	<b>Transfer by bus to the Black Church</b>
17:30 – 19:00	<b>Visit and organ concert at the Black Church</b>

# Wednesday, August 31<sup>st</sup>, 2016

8:00 – 8:30 **Registration**

## Ultrashort laser pulses – Chairmen: V. I. Konov, P. Hess

8:30 – 8:55 **Hybrid Subtractive and Additive 3D Microprocessing Using Femtosecond Laser for Functional Biochip Fabrication**

Invited

**K. Sugioka**, F. Sima, J. Xu, D. Wu, K. Midorikawa  
*RIKEN Center for Advanced Photonics, Wako, Japan*

8:55 – 9:20 **Photo-excited electrons from plasmonic nanostructures inducing surface photochemistry**

Invited

**G. Toker**, L. Zilberberg, H. Shankar and **M. Asscher**  
*Institute of Chemistry, The Hebrew University of Jerusalem, Israel*

9:20 – 9:45 **Ultrafast laser-induced processes on surfaces at the micro/nano-scale by temporally-shaped fs laser pulses**

Invited

**G. D. Tsibidis**, E. Stratakis, **P. A. Loukakos**  
*Institute of Electronic Structure and Laser, FORTH, Heraklion, Greece*

9:45 – 10:00 **Initiation of air ionization by ultrashort laser pulses: Evidence for a role of metastable-state air molecules**

9:45 – 10:00  
Oral

**A.V. Bulgakov**<sup>1,2</sup>, I. Mirza<sup>3</sup>, N.M. Bulgakova<sup>1,3</sup>, V.P. Zhukov<sup>4,5</sup>, E.E.B. Campbell<sup>2</sup>, T. Mocek<sup>3</sup>  
<sup>1</sup>*S.S. Kutateladze Institute of Thermophysics SB RAS, Novosibirsk, Russia*  
<sup>2</sup>*EaStCHEM and School of Chemistry, University of Edinburgh, UK*  
<sup>3</sup>*HiLASE Centre, Institute of Physics ASCR, Czech Republic*  
<sup>4</sup>*Institute of Computational Technologies SB RAS, Novosibirsk, Russia*  
<sup>5</sup>*Novosibirsk State Technical University, Novosibirsk, Russia*

10:00 – 10:15 **Light-induced spatial phase modulation in films of DNA-CTMA-DR1 investigated using a pump – probe interferometric method**

Oral

**A. Petris**<sup>1\*</sup>, P. Gheorghe<sup>1</sup>, V. I. Vlad<sup>1</sup>, I. Rau<sup>2</sup>, A. M. Manea<sup>2</sup>, F. Kajzar<sup>2</sup>  
<sup>1</sup>*National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania*  
<sup>2</sup>*University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Romania*

10:15 – 10:30 **Nanostructure and optical properties of noble metal particles prepared by nanosecond and picosecond ablation in liquid**

10:15 – 10:30  
Oral

**P. M. Ossi**<sup>1</sup>, M. Santoro<sup>2</sup>, E. Fazio<sup>2</sup>, S. Trusso<sup>3</sup>, P. Calandra<sup>4</sup>, M. Tommasini<sup>5</sup>, C. Zanchi<sup>6</sup>, R. Saija<sup>2</sup>, F. Neri<sup>2</sup>  
<sup>1</sup>*Dipartimento di Energia & NEMAS, Politecnico di Milano, Italy*  
<sup>2</sup>*Dipartimento di Scienze Matematiche e Informatiche, Scienze Fisiche e Scienze della Terra, Università di Messina, Italy*  
<sup>3</sup>*CNR-IPCF Istituto per i Processi Chimico-Fisici, Messina, Italy*  
<sup>4</sup>*CNR-ISMN Istituto per lo studio dei materiali nanostrutturati, Sede Montelibretti, Roma, Italy*  
<sup>5</sup>*Dipartimento di Chimica, Materiali, Ingegneria Chimica, Politecnico di Milano, Italy*  
<sup>6</sup>*Dipartimento di Energia, Politecnico di Milano, Italy*

10:30 – 10:50 **Coffee Break**

## Modeling and simulation – Chairmen: A. Dogariu, A. Petris

10:50 – 11:15 **Angular distribution of ablated species from a multicomponent target in vacuum and background gas**

Invited

**S. Canulescu**<sup>1</sup>, M. Döbeli<sup>2</sup>, J. Schou<sup>1</sup>  
<sup>1</sup>*Department of Photonics Engineering, Technical University of Denmark, Denmark*  
<sup>2</sup>*Ion Beam Physics, ETH Zürich, Switzerland*

11:15 – 11:40 **Ultrafast laser light absorption in dielectrics: Focusing into the bulk versus surface irradiation**

11:15 – 11:40  
Invited

**N.M. Bulgakova**<sup>1,2</sup>, V.P. Zhukov<sup>3,4</sup>, I. Mirza<sup>1</sup>, A.V. Bulgakov<sup>2,5</sup>, T. Mocek<sup>1</sup>  
<sup>1</sup>*HiLASE Centre, Institute of Physics ASCR, Czech Republic*  
<sup>2</sup>*S.S. Kutateladze Institute of Thermophysics SB RAS, Novosibirsk, Russia*  
<sup>3</sup>*Institute of Computational Technologies SB RAS, Novosibirsk, Russia*  
<sup>4</sup>*Novosibirsk State Technical University, Novosibirsk, Russia*  
<sup>5</sup>*EaStCHEM and School of Chemistry, University of Edinburgh, UK*

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## Molecular resonances: from electron/ion to photon/neutral collisions and backwards

J. Zs. Mezei<sup>1,2,3,4</sup>, F. Colboc<sup>1</sup>, D. A. Little<sup>5</sup>, N. Pop<sup>6</sup>, K. Chakrabarti<sup>7</sup>, O. Motapon<sup>8</sup>, A. Bultel<sup>9</sup>, K. Hassouni<sup>2</sup>, J. Tennyson<sup>5</sup>, Ch. Jungen<sup>3</sup>, I. F. Schneider<sup>1,3</sup>

<sup>1</sup>Laboratoire Ondes et Milieux Complexes, CNRS, Université du Havre, Normandie Université, France

<sup>2</sup>Laboratoire des Sciences des Procédés et des Matériaux, CNRS, Université Paris 13, France

<sup>3</sup>Laboratoire Aimé Cotton, CNRS, ENS Cachan and Université Paris-Sud, Orsay, France

<sup>4</sup>Institute of Nuclear Research of the Hungarian Academy of Sciences, Debrecen, Hungary

<sup>5</sup>Department of Physics and Astronomy, University College London, United Kingdom

<sup>6</sup>Department of Physical Foundation of Engineering, Politehnica University Timișoara, Romania

<sup>7</sup>Department of Mathematics, Scottish Church College, Kolkata, India

<sup>8</sup>Department of Physics, Faculty of Sciences, University of Douala, Cameroon

<sup>9</sup>Complexe de Recherche Interprofessionnel en Aérothermochimie, CNRS, Université de Rouen, France,

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11:40 – 11:55  
Oral

## Laser-based realization of 1D guided topographical wedge waves with unrivaled nonlinearity

P. Hess<sup>1</sup>, A. M. Lomonosov<sup>1,3</sup>, A. P. Mayer<sup>2</sup>

<sup>1</sup>Institute of Physical Chemistry, University of Heidelberg, Germany

<sup>2</sup>HS Offenburg, University of Applied Sciences, Germany

<sup>3</sup>General Physics Institute, Russian Academy of Sciences, Moscow, Russia

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11:55 – 12:10  
Oral

## Simulations of short pulse laser ablation and nanoparticle formation under spatial confinement: From background gas to liquid environment and to solid overlayer

C. Wu,<sup>1</sup> C.Y. Shih,<sup>1</sup> H. Wu,<sup>1,2</sup> E. T. Karim,<sup>1</sup> M. V. Shugaev,<sup>1</sup> L. V. Zhigilei<sup>1</sup>

<sup>1</sup>Department of Materials Science and Engineering, University of Virginia, USA

<sup>2</sup>Institute of Modern Optics, Nankai University, China

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12:10 – 12:25  
Oral

## Ab-initio and classical molecular dynamics simulations of ultrafast structural phenomena in laser excited solids

T. Zier, B. Bauerhenne, V. Lipp, D. S. Ivanov, E. S. Zijlstra, M. E. Garcia

Institute of Physics, Universität Kassel, Germany

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12:25 – 12:40  
Oral

## Nonequilibrium electron dynamics in laser-excited copper and gold

S. Weber, B. Rethfeld

Department of Physics and Research Center OPTIMAS, Technical University of Kaiserslautern, Germany

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12:40 – 12:55  
Oral

## Modeling of propagation of femtosecond laser pulses with spatiotemporal coupling through glass materials

V.P. Zhukov, N.M. Bulgakova, Y Morova, S. Akturk

<sup>1</sup>Institute of Computational Technologies SB RAS, Novosibirsk, Russia

<sup>2</sup>Novosibirsk State Technical University, Novosibirsk, Russia

<sup>3</sup>HiLASE Centre, Institute of Physics ASCR, Czech Republic

<sup>4</sup>Institute of Thermophysics SB RAS, Novosibirsk, Russia

<sup>5</sup>Department of Physics, Istanbul Technical University, Istanbul, Turkey

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12:55 – 13:10  
Oral

13:10- 14:10 Lunch

## Laser processing 2 – Chairmen: J. Schou, C. Focsa

### Multi-scale architected materials: from vortex-induced to dual-color direct laser writing in silver-containing glasses

Y.Petit<sup>1,2</sup>, E. Lee<sup>1</sup>, K. Mishick<sup>1</sup>, E. Brasselet<sup>3</sup>, S. Danto<sup>2</sup>, I. M. Hönninger<sup>1</sup>, T. Cardinal<sup>2</sup>, L. Canioni<sup>1</sup>

<sup>1</sup>University of Bordeaux, CNRS, CEA, CELIA, UMR 5107, France

<sup>2</sup>University of Bordeaux, CNRS, ICMCB, UPR 9048, France

<sup>3</sup>University of Bordeaux, CNRS, LOMA, UMR 5798, France

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14:10 – 14:35  
Invited

### Surface structuring of silicon with femtosecond optical vortex laser beams generated by a q-plate

J. JJ Nivas<sup>1,2</sup>, Zhenming Song<sup>1,3</sup>, F. Cardano<sup>1</sup>, A. Rubano<sup>1,2</sup>, A. Vecchione<sup>4</sup>,

R. Fittipaldi<sup>4</sup>, D. Paparo<sup>5</sup>, L. Marrucci<sup>1</sup>, R. Bruzese<sup>1,2</sup>, S. Amoruso<sup>1,2</sup>

<sup>1</sup>Dipartimento di Fisica, Università di Napoli Federico II, Complesso Universitario di Monte S. Angelo, Napoli, Italy,

<sup>2</sup>CNR-SPIN UOS Napoli, Complesso Universitario di Monte S. Angelo, Napoli, Italy.

<sup>3</sup>School of Science, Tianjin Polytechnic University, Xiqing District, Tianjin, P. R. China.

<sup>4</sup>CNR-SPIN, UOS Salerno, Fisciano (SA), Italy.

<sup>5</sup>National Research Council, Institute of Applied Science & Intelligent Systems (ISASI) 'E. Caianiello', Pozzuoli (NA), Italy.

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14:35 – 14:50  
Oral

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14:50 – 15:05 **Power Splitting of 1x16 in Multicore Photonic Crystal Fibers**

Oral

**D. Malka, A. Peled**

*Holon Institute of Technology, Electrical Engineering Department, Israel*

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**Investigations of Radiation Effects in Pulsed Laser Deposited Thin Films**

15:05 – 15:20

Oral

**D. Craciun<sup>1</sup>, G. Socol<sup>1</sup>, S. Behdad<sup>2</sup>, B. Boesl<sup>2</sup>, E. Lambers<sup>3</sup>, D. Pantelica<sup>4</sup>, P. Ionescu<sup>4</sup>, B. S. Vasile<sup>5</sup>, H. Makino<sup>6</sup>, L. M. Trinca<sup>7,8</sup>, A. C. Galca<sup>7</sup>, D. Simeone<sup>9</sup>, V. Craciun<sup>1</sup>**

<sup>1</sup>National Institute for Lasers, Plasma and Radiation Physics, Măgurele, Romania

<sup>2</sup>Florida International University, Miami, USA

<sup>3</sup>MAIC, University of Florida, Gainesville, USA

<sup>4</sup>Horia Hulubei National Institute for Physics and Nuclear Engineering, Măgurele, RO

<sup>5</sup>Polytechnic University Bucharest, Bucharest, Romania

<sup>6</sup>Research Institute, Kochi University of Technology, Kochi, Japan

<sup>7</sup>National Institute for Materials Physics, Magurele, Ilfov, Romania

<sup>8</sup>Faculty of Physics, University of Bucharest, Magurele, Ilfov, Romania

<sup>9</sup>CEA/DEN/DANS/DM2S/SERMA/LEPP-LRC CARMEN CEN Saclay, France

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**Formation of silicon nanocrystals by continuous wave laser annealing of SiO<sub>x</sub> films**

15:20 – 15:35

Oral

**T. Fricke-Begemann<sup>1</sup>, K. Rewerts<sup>1</sup>, N. Wang<sup>2</sup>, P. Peretzki<sup>2</sup>, M. Seibt<sup>2</sup>, J. Ihlemann<sup>1</sup>**

<sup>1</sup>Laser-Laboratorium Göttingen e.V., Germany

<sup>2</sup>IV. Physikalisches Institut, Universität Göttingen, Germany

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**Evaluation of mechanical and physiochemical properties of Si-DLC and Ti-DLC coatings**

15:35 – 15:50

Oral

**D. Bociaga<sup>1</sup>, A. Sobczyk-Guzenda<sup>2</sup>, W. Szymanski<sup>3</sup>, A. Jadrzejczak<sup>1</sup>, A. Olejnik<sup>1</sup>, A. Jastrzebska<sup>3</sup>, K. Jastrzebski<sup>1</sup>**

<sup>1</sup>Division of Biomedical Engineering and Functional Materials, Institute of Material Science and Engineering, Lodz University of Technology, Poland

<sup>2</sup>Division of coatings engineering and non-metallic materials, Institute of Material Science and Engineering, Lodz University of Technology, Poland

<sup>3</sup>Division of Biophysics, Institute of Material Science and Engineering Lodz University of Technology, Poland,

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15:50 – 16:10 **Coffee Break**

**High Power Lasers – Chairmen: A. Peled, V. Craciun**

16:10 – 16:25

Oral

**Gamma-beam system at ELI-NP and highlights of the experimental program**

**D. L. Balabanski**

*ELI-NP, IFIN-HH, Magurele, Romania*

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**Ultrashort pulse laser processing of glass material surfaces**

16:25 – 16:40

Oral

**I. Mirza<sup>1</sup>, N. M. Bulgakova<sup>1,2</sup>, V. Michálek<sup>3</sup>, O. Haderka<sup>3,4</sup>, L. Fekete<sup>5</sup>, T. Mocek<sup>1</sup>**

<sup>1</sup>HiLASE Centre, Institute of Physics ASCR, Czech Republic

<sup>2</sup>Institute of Thermophysics SB RAS, Novosibirsk, Russia

<sup>3</sup>Institute of Physics ASCR, Joint Laboratory of Optics of Palacký University and Institute of Physics ASCR, Czech Republic

<sup>4</sup>Regional Centre of Advanced Technologies and Materials, Joint Laboratory of Optics of Palacký University and Institute of Physics ASCR, Palacký University, Czech Republic

<sup>5</sup>Institute of Physics ASCR, Praha, Czech Republic

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**High power, high intensity contrast hybrid femtosecond laser systems**

16:40 – 16:55

Oral

**R. Dabu**

*National Institute for Nuclear Physics and Engineering, ELI – NP, -Magurele, Romania*

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**Numerical investigation of the temperature modulation relaxation on the surfaces of Au, Ti and SiO<sub>2</sub> upon femtosecond laser irradiation above the damage threshold**

16:55 – 17:10

Oral

**Y. Levy<sup>1</sup>, E. L. Gurevich<sup>2</sup>, N. M. Bulgakova<sup>1,3</sup>**

<sup>1</sup>HiLASE Centre, Institute of Physics CAS, Za Radnici 828, Czech Republic

<sup>2</sup>Chair of Applied Laser Technologies, Ruhr-Universität Bochum, Bochum, Germany

<sup>3</sup>S.S. Kutateladze Institute of Thermophysics, SB RAS, Novosibirsk, Russia

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**Combined laser-gamma beam experiments at ELI-NP**

17:10 – 17:25

Oral

**O. Tesileanu<sup>1</sup>, K. Homma<sup>2,3</sup>, S. Ataman<sup>1</sup>, M. Cuciuc<sup>1</sup>, L. D'Alessi<sup>1</sup>, Y. Nakamiya<sup>4</sup>, K. Seto<sup>1</sup>, Y. Xu<sup>1</sup>, M. Zeng<sup>1</sup>**

<sup>1</sup>ELI-NP, "Horia Hulubei" National Institute for Physics and Nuclear Engineering, Magurele, Romania

<sup>2</sup>Graduate School of Science, Hiroshima University, Higashihiroshima, Hiroshima, Japan

<sup>3</sup>International Center for Zetta-Exawatt Science and Technology, Ecole Polytechnique, France

<sup>4</sup>Institute of Chemical Research, Kyoto University, Gokasho, Uji-city, Kyoto, Japan

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17:25 – 19:30 **Poster Session 2**

# Thursday, September 1<sup>st</sup>, 2016

8:00 – 8:30 **Registration**

## Nanofabrication, nanomaterials 1 – Chairmen: K. Sugioka, N. Enache

### Laser Synthesis and Characterization of Photoresponsive Low-Dimensional Nanomaterials

8:30 – 8:55  
Invited **D. B. Geohegan<sup>1</sup>, A. A. Puretzky<sup>1</sup>, K. Xiao<sup>1</sup>, X. Li<sup>1</sup>, K. Wang<sup>1</sup>, M. Mahjouri-Samani<sup>1</sup>, L. Liang<sup>1</sup>, B.C. Sumpster<sup>1</sup>, M. Tian<sup>3</sup>, G. Duscher<sup>3</sup>, M. Yoon<sup>1</sup>, G. Eres<sup>2</sup>, C. M. Rouleau<sup>1</sup>, R. Unocic<sup>1</sup>, M. Chi<sup>1</sup>, J. C. Idrobo<sup>1</sup>**

<sup>1</sup>Center for Nanophase Materials Sciences, Oak Ridge National Laboratory, Oak Ridge, TN, USA

<sup>2</sup>Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

<sup>3</sup>Dept. of Materials Science and Engineering, University of Tennessee, Knoxville, TN, USA

### Nano-fabrication by interference pattern of coherent beam

8:55 – 9:20  
Invited **Y. Nakata<sup>1</sup>, M. Yoshida<sup>1</sup>, K. Osawa<sup>1</sup>, N. Miyanaga<sup>1</sup>**

<sup>1</sup>Institute of Laser Engineering, Osaka University, Japan

### 4D-Printed Hydrogel Based Composite Structures by Additive Processing

9:20 – 9:45  
Invited **A. Vaseashta<sup>1,2</sup>, N. Bolgen<sup>2</sup>**

<sup>1</sup>International Clean Water Institute, Herndon, VA, USA

<sup>2</sup>Mersin University, Mersin, TURKEY

### Pulse Forge Curing of Electronic and Energy Materials

9:45 – 10:10  
Invited **D.B. Chrisey<sup>1</sup>, B.C. Riggs<sup>1</sup>, R. Elupula<sup>1</sup>, S. Adireddy<sup>1</sup>, S.M. Grayson<sup>1</sup>**

<sup>1</sup>Tulane University, New Orleans, USA

### DFT Study of Photocatalytic Degradation of Common Antibiotics on TiO<sub>2</sub> Nanoclusters

10:10 – 10:25  
Oral **C. I. Oprea, M. A. Girtu**  
*Faculty of Applied Sciences and Engineering, Ovidius University of Constanța, Romania*

### Enhanced photocatalytic activities of PLD TiO<sub>2</sub> films supporting Au nanoparticles under UV irradiation

10:25 – 10:40  
Oral **T. Yoshida<sup>1</sup>, T. Tabuchi<sup>1</sup>, F. Kikuchi<sup>2</sup>, I. Umezu<sup>3</sup>, and M. Haraguchi<sup>2</sup>**  
<sup>1</sup>Course of Chemical Engineering, National Institute of Technology, Anan College, Tokushima, Japan  
<sup>2</sup>Department of Optical Science and Technology, Tokushima University, Tokushima, Japan  
<sup>3</sup>Department of physics, Konan University, Kobe, Japan

10:40 – 11:00 **Coffee Break**

## Laser applications 2 – Chairmen: G. Račiukaitis, M. Girtu

### Understanding the optical properties of ultrashort-pulse laser excited dielectric materials

11:00 – 11:25  
Invited **L. Haahr-Lillevang<sup>1</sup>, S. H. Møller<sup>1</sup>, P. Balling<sup>1</sup>**  
<sup>1</sup>Department of Physics and Astronomy, Aarhus University, Denmark

### Laser fabrication of polymer ferroelectric nanostructures. Application for non-volatile organic memory devices

11:25 – 11:50  
Invited **J. Cui<sup>1</sup>, M. Hernández<sup>2</sup>, D.E. Martínez-Tong<sup>1</sup>, A. Rodríguez-Rodríguez<sup>1</sup>, A. Nogales<sup>1</sup>, M.C.García-Gutiérrez<sup>1</sup>, T.A. Ezquerro<sup>1</sup>, E.Rebollar<sup>2</sup>**  
<sup>1</sup>Instituto de Estructura de la Materia, IEM-CSIC, Madrid, Spain  
<sup>2</sup>Instituto de Química Física Rocasolano, IQFR-CSIC, Madrid, Spain

### Laser printing: an alternative approach

11:50 – 12:15  
Invited **P. Sopeña<sup>1</sup>, S. González-Torres<sup>1</sup>, J.M. Fernández-Pradas<sup>1</sup>, X. Arrese<sup>2</sup>, A. Cirera<sup>2</sup>, P. Serra<sup>1</sup>**  
<sup>1</sup>Universitat de Barcelona, IN2UB, Applied Physics Department, Spain  
<sup>2</sup>Universitat de Barcelona, MIND-IN2UB, Engineering Department: Electronics Martí i Franquès I, Spain

### Comparison of pulsed electron beam deposition and pulsed laser deposition methods

12:15 – 12:30  
Oral **M. Nistor**  
*National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania*

### Effect of pulse duration on ultrafast energy deposition in copper

12:30 – 12:45  
Oral **J. Winter<sup>1</sup>, H. Huber<sup>1</sup>**  
<sup>1</sup>Department of Applied Sciences and Mechatronics, Munich University of Applied Sciences, Germany



12:45 – 13:00 Oral	<b>Diffraction-Free Femtosecond Laser Beams for Nanoscale Patterning of 2D Materials and Thin Films</b> <b>R. Sahin<sup>1</sup>, T. Ersoy<sup>1</sup>, E. Simsek<sup>2</sup>, S. Akturk<sup>1</sup></b> <sup>1</sup> <i>Istanbul Technical University, Department of Physics, Turkey</i> <sup>2</sup> <i>George Washington University, Washington DC, USA</i>
13:00 – 13:15 Oral	<b>Femtosecond laser modification of NiPd single and 5xNi/Pd multilayer thin films</b> <b>S. Petrović<sup>1</sup>, B. Gaković<sup>1</sup>, D. Peruško<sup>1</sup>, B. Radak<sup>1</sup>, M. Zamfirescu<sup>2</sup>, C. R. Luculescu<sup>2</sup>, I. N. Mihailescu<sup>2</sup></b> <sup>1</sup> <i>Institute of Nuclear Sciences Vinča, University of Belgrade, Serbia</i> <sup>2</sup> <i>National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania</i>
13:15 – 13:30 Oral	<b>Laser-induced pressure waves in glass: time-resolved studies</b> <b>A. Mouskeftaras<sup>1</sup>, B. McMillen<sup>1</sup>, Y. Bellouard<sup>1</sup></b> <sup>1</sup> <i>Galatea Lab, STI/IMT, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland</i>
13:30 – 14:30	<b>Lunch</b>
14:30 – 19:00	<b>Conference Excursion to Bran Castle or Rasnov Fortress</b>
19:30	<b>Gala dinner – Cerbul Carpatin Restaurant, Piata Sfatului 12, Brasov</b>

## Friday, September 2<sup>nd</sup>, 2016

8:00 – 8:30	<b>Registration</b>
<b>Nanofabrication, nanomaterials 2 – Chairmen: D. B. Geohegan, J. Reif</b>	
8:30 – 8:55 Invited	<b>3D additive manufacturing of highly bioactive alkali-free glass scaffolds for healthcare applications</b> <b>B.C.G. Silva<sup>1</sup>, A.C. Marques<sup>1</sup>, S.H. Olhero<sup>1</sup>, H.R. Fernandes<sup>1</sup>, A. Brito<sup>2</sup>, J.M.F. Ferreira<sup>1</sup></b> <sup>1</sup> <i>Department of Ceramics and Glass Engineering, University of Aveiro, CICECO, Portugal</i> <sup>2</sup> <i>Reg4life-Regeneration Technology, S.A., Biocant, Parque Tecnológico de Cantanhede, Portugal</i>
8:55 – 9:20 Invited	<b>MAPLE-deposited polymeric film and heterostructures towards innovative organic light-emitting devices</b> <b>A.P. Caricato<sup>1,2</sup>, G. Accorsi<sup>2</sup>, M. Cesaria<sup>1</sup>, F. Mariano<sup>1</sup>, M. Martino<sup>1,2</sup>, M. Mazzeo<sup>1,2</sup>, C. Leo<sup>1</sup></b> <sup>1</sup> <i>Dipartimento di Matematica e Fisica “Ennio De Giorgi”, Università del Salento, Lecce, Italy</i> <sup>2</sup> <i>CNR-Nanotec, Istituto di Nanotecnologia, Polo di Nanotecnologia, c/o Campus Ecotekne, via Monteroni, Lecce, Italy</i>
9:20 – 9:45 Invited	<b>Femtosecond laser treatment of biomaterials and biological tissues surfaces</b> <b>R. Vilar<sup>1</sup>, V. Oliveira<sup>2</sup>, L. Canguero<sup>1</sup>, Tri Le Quang<sup>1</sup></b> <sup>1</sup> <i>CeFEMA – Centre of Physics and Engineering of Advanced Materials and Instituto Superior Técnico, University of Lisbon, Portugal</i> <sup>2</sup> <i>CeFEMA – Center of Physics and Engineering of Advanced Materials, Instituto Superior Técnico Instituto Superior de Engenharia de Lisboa, Instituto Politécnico de Lisboa, Portugal</i>
9:45 – 10:00 Oral	<b>Compression of dry lysozyme targets: A new parameter in protein thin film production</b> <b>C. Constantinescu<sup>1,2,3</sup>, A. Matei<sup>1,3</sup>, M. Dinescu<sup>3</sup>, J. Schou<sup>1,*</sup></b> <sup>1</sup> <i>DTU Fotonik, Technical University of Denmark, Denmark</i> <sup>2</sup> <i>Université de Limoges, CNRS, Laboratoire SPCTS (UMR 7315), France</i> <sup>3</sup> <i>INFELPR – National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania</i>
10:00 – 10:15 Oral	<b>Hybrid laser technology and doped biomaterials</b> <b>M. Jelínek<sup>1,2</sup></b> <sup>1</sup> <i>Institute of Physics of the Czech Academy of Sciences, Prague, Czech Republic</i> <sup>2</sup> <i>Czech Technical University in Prague, Faculty of Biomedical Engineering, Kladno, Czech Republic</i>



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**Oscillatory behaviour and double-layer effects in high-fluence laser ablation plasmas**

10:15 – 10:30  
Oral  
**S. Gurlui<sup>1</sup>, P. Nica<sup>2</sup>, M. Agop<sup>2</sup>, M. Ziskind<sup>3</sup>, C. Focsa<sup>3</sup>**  
<sup>1</sup>*Facultatea de Fizica, Universitatea "Alexandru Ioan Cuza", Iasi, Romania*  
<sup>2</sup>*Universitatea Tehnica "Gheorghe Asachi", Iasi, Romania*  
<sup>3</sup>*Laboratoire de Physique des Lasers, Atomes et Molécules (UMR CNRS 8523), Université de Lille 1 Sciences & Technologies, France*

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**Three-dimensional Cu micropatterns fabricated using femtosecond laser-induced CuO nanoparticle reduction**

10:30 – 10:45  
Oral  
**S. Arakane, M. Mizoshiri, J. Sakurai, S. Hata**  
*Dept. of Micro-Nano Systems Eng., Graduate School of Eng., Nagoya Univ., Nagoya, Aichi, Japan*

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10:45 – 11:05 **Coffee Break**

**Laser Nanostructuring – Chairmen: P. Serra, L. V. Zhigilei****Far-field nanostructuring in dielectric materials enabled by near-field enhancement of laser-induced nanoplasma**

11:05 – 11:20  
Oral  
**Yang Liao, Ya Cheng**  
*State Key Laboratory of High Field Laser Physics, Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*

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**Effects of the quencher diffusion and the photoinitiator depletion on the spatial resolution and performance of direct laser writing by multiphoton polymerization**

11:20 – 11:35  
Oral  
**A. Pikulin,<sup>1</sup> N. Bityurin,<sup>1</sup> V. I. Sokolov<sup>2</sup>**  
<sup>1</sup>*Institute of Applied Physics of Russian Academy of Sciences, Nizhny Novgorod, Russia*  
<sup>2</sup>*Institute on Laser and Information Technologies, Russian Academy of Sciences, Moscow, Russia*

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**Laser interference lithography in case of nanosecond and picosecond laser pulses**

11:35 – 11:50  
Oral  
**E. Stankevičius, E. Daugnoraitė, M. Garliauskas, I. Matulaitienė, G. Niaura, G. Račiukaitis**  
*Center for Physical Sciences and Technology, Vilnius, Lithuania*

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**Influence of focusing depth for the Nanogratings Formation and Etching Selectivity in Fused Silica**

11:50 – 12:05  
Oral  
**V. Stankevič<sup>1,2</sup>, G. Račiukaitis<sup>2</sup>**  
<sup>1</sup>*Center for Physical Sciences and Technology, Vilnius, Lithuania*  
<sup>2</sup>*ELAS UAB, Vilnius, Lithuania*

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**Laser-lithography as a micro-machining tool for 3D laser target engineering**

12:05 – 12:20  
Oral  
**F. Jipa<sup>1</sup>, I. Tiseanu<sup>1</sup>, C. Luculescu<sup>1</sup>, M. Cernaianu<sup>2</sup>, D. Ursescu<sup>2</sup>, M. Zamfirescu<sup>1</sup>**  
<sup>1</sup>*National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania*  
<sup>2</sup>*National Institute for Nuclear Physics and Engineering, ELI-NP department, Magurele, Romania*

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**Femtosecond-Laser-Induced Periodic Surface Structures on Magnetic Layer Targets: the Role of Magnetization**

12:20 – 12:35  
Oral  
**K. Czajkowski, M. Ratzke, O. Varlamova, J. Reif**  
*Brandenburg. Tech. Univ. – BTU Cottbus, Germany*

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**Period of Laser-Induced Periodic Surface Structures (LIPSS) Described in the Frames of Hydrodynamic Models**

12:35 – 13:00  
Invited  
**E. Gurevich**  
*Ruhr-University of Bochum*

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13:00 – 14:00 **Lunch**

**Laser Processing 3 – Chairmen: C. Ristoscu, S.A. Moraru****Optical means to probe orbital ordering in epitaxial vanadate films fabricated by pulsed-laser ablation**

14:00 – 14:15  
Oral  
**I. Vrejoiu<sup>1</sup>, C. Himcinschi<sup>2</sup>, L. Bussmann<sup>1</sup>, P. H. M. van Loosdrecht<sup>1</sup>**  
<sup>1</sup>*University of Cologne, II. Physics Institute, Cologne,*  
<sup>2</sup>*TU Bergakademie Freiberg, Institute of Theoretical Physics, Freiberg, Germany*

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14:15 – 14:30 Oral	<p><b><i>In vitro</i> behaviour of human mesenchymal stem cells on smart biointerfaces obtained by laser methods for tissue engineering applications</b></p> <p><b>L. Rusen<sup>1</sup>, Livia Elena Sima<sup>2</sup>, Madalina Icriverzi<sup>2,3</sup>, N. Mihailescu<sup>1</sup>, I. Anghel<sup>1,4</sup>, A. Bonciu<sup>1,4</sup>, S. Brajnicov<sup>1,5</sup>, A. Cimpean<sup>3</sup>, M. Dinescu<sup>1</sup>, A. Roseanu<sup>2</sup> and V. Dinca<sup>1</sup></b></p> <p><sup>1</sup>National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania  <sup>2</sup>Institute of Biochemistry, Romanian Academy, Bucharest, Romania  <sup>3</sup>University of Bucharest, Faculty of Biology, Department of Biochemistry and Molecular Biology, Bucharest, Romania  <sup>4</sup>University of Bucharest, Faculty of Physics, Magurele, Romania  <sup>5</sup>University of Craiova, Faculty of Mathematics and Natural Sciences, Craiova, Romania</p>
14:30 – 14:45 Oral	<p><b>Nanostructuring of dielectric surfaces using nanosecond laser radiation</b></p> <p><b>P. Lorenz, I. Zagoranskiy, J. Zajadacz, F. Frost, C. Grüner, L. Bayer, K. Zimmer</b>  Leibniz-Institut für Oberflächenmodifizierung e. V., Permoserstr. 15, 04318 Leipzig, Germany</p>
14:45 – 15:00 Oral	<p><b>Anisotropy evaluation in polarization second harmonic generation imaging of collagen in histopathological samples</b></p> <p><b>R. Hristu, S. G. Stanciu, D. E. Tranca, G. A. Stanciu</b>  Center for Microscopy-Microanalysis and Information Processing, University Politehnica of Bucharest, Romania</p>
15:00 – 15:15 Oral	<p><b>Development of flexible oxide thin films grown by photo-assisted MOD</b></p> <p><b>T. Tsuchiya, T. Nakajima, T. Nakamura, I. Yamaguchi, H. Matsui</b>  National Institute of Advanced Industrial Science and Technology (AIST), Japan</p>
15:15 – 15:30 Oral	<p><b>Polymer thin film surface patterning by direct laser writing</b></p> <p><b>N. Tosa<sup>1</sup>, E. Pavel<sup>2</sup>, S. Jinga<sup>3</sup>, V. Marinescu<sup>4</sup>, R. Trusca<sup>5</sup></b></p> <p><sup>1</sup>National Institute for R&amp;D of Isotopic and Molecular Technologies, Romania  <sup>2</sup>Storex Technologies, Bucharest, Romania  <sup>3</sup>Faculty of Applied Chemistry and Materials Science, “Politehnica” University of Bucharest, Romania  <sup>4</sup>National Institute for R&amp;D in Electrical Engineering, Bucharest, Romania  <sup>5</sup>META V R&amp;D, Bucharest, Romania</p>
15:30 – 15:45 Oral	<p><b>Ablation behavior of dentin by femtosecond laser</b></p> <p><b>Q. T. Le<sup>1,2</sup>, C. Bertrand<sup>2</sup>, R. Vilar<sup>1</sup></b></p> <p><sup>1</sup>Instituto Superior Técnico and CeFEMA – Center of Physics and Engineering of Advanced Materials, Lisbon University Avenida Rovisco Pais, Portugal  <sup>2</sup>Laboratoire ICMCB – CNRS- UPR9048, France</p>
15:45 – 16:00 Oral	<p><b>Simulation of Laser Induced Absorption Phenomena in Transparent Materials</b></p> <p><b>D. Savastru<sup>1</sup>, R. Savastru<sup>1</sup>, S. Miclos<sup>1</sup>, I. Lancranjan<sup>1</sup></b>  <sup>1</sup>The National Institute of Research and Development for Optoelectronics - INOE 2000, Romania</p>
16:00 – 16:15 Oral	<p><b>Improvement in Ultraviolet Based Decontamination rate Using Meta-materials</b></p> <p><b>S. Bazgan<sup>1</sup>, M. Turcan<sup>1</sup>, T. Paslari<sup>1,2</sup>, N. Ciobanu<sup>1,3</sup>, C. Ristoscu<sup>4</sup>, I. N. Mihailescu<sup>4</sup>, A. Vaseashta<sup>5</sup>, N. Enaki<sup>1,2</sup></b></p> <p><sup>1</sup>Quantum Optics and Kinetic Processes Lab, Institute of Applied Physics of Academy of Sciences of Moldova, Chişinău, Moldova  <sup>2</sup>Department of Physics and Engineering, Moldova State University, Chişinău, Moldova  <sup>3</sup>Department of Human Physiology and Biophysics, State University of Medicine and Pharmacy “Nicolae Testemitanu”, Chişinău, R. Moldova  <sup>4</sup>National Institute for Lasers, Plasma and Radiation Physics, Bucharest, Romania  <sup>5</sup>International Clean Water Institute, NUARI, SUA</p>
16:15 – 16:30	<p><b>Closing ceremony</b></p>

Chairmen: P. M. Ossi, M. Garcia, A. Vaseashta, M. Dinescu

Theoretical approach, simulation and modeling of photo-excited processes

P01 Calculation of ionization probability of Nitrogen in gas jets for the Laser Plasma Wakefield Acceleration experiments at ELI-NP

**S. Balascuta**

*The National Institute for R&D in Physics and Nuclear Engineering, Department of ELI-NP, Romania*

P02 Compositional analyses of aerosols via laser-induced breakdown spectroscopy in helium

**M. Boudhib<sup>1</sup>, J. Hermann<sup>2</sup>, C. Dutouquet<sup>1</sup>**

<sup>1</sup>*Institut National de l'Environnement Industriel et des Risques/DRC/CARA/NOVA, Verneuil-en-Halatte, France*

<sup>2</sup>*LP3, CNRS/Aix-Marseille Université, Marseille, France*

P03 Laser polarization effects in laser-assisted electron-hydrogen inelastic collisions

**G. Buica**

*Institute of Space Sciences-INFLPR, Magurele, Romania*

P04 Interaction of femtosecond doughnut-shaped laser pulses with glasses

**N.M. Bulgakova<sup>1,2</sup>, V.P. Zhukov<sup>3,4</sup>, M.P. Fedoruk<sup>3,5</sup>, A.M. Rubenchik<sup>6</sup>**

<sup>1</sup>*HiLASE Centre, Institute of Physics ASCR, Czech Republic*

<sup>2</sup>*Institute of Thermophysics SB RAS, Novosibirsk, Russia*

<sup>3</sup>*Institute of Computational Technologies SB RAS, Novosibirsk, Russia*

<sup>4</sup>*Novosibirsk State Technical University, Novosibirsk, Russia*

<sup>5</sup>*Novosibirsk State University, Novosibirsk, Russia*

<sup>6</sup>*Lawrence Livermore National Laboratory, Livermore, California, USA*

P05 Modeling of multipulse ultrashort laser irradiation of fused silica: Accumulation effects

**N.M. Bulgakova<sup>1,2</sup>, V.P. Zhukov<sup>3,4</sup>, Y. Morova<sup>5</sup>, S. Aktürk<sup>5</sup>**

<sup>1</sup>*HiLASE Centre, Institute of Physics ASCR, Czech Republic*

<sup>2</sup>*Institute of Thermophysics SB RAS, Novosibirsk, Russia*

<sup>3</sup>*Institute of Computational Technologies SB RAS, Novosibirsk, Russia*

<sup>4</sup>*Novosibirsk State Technical University, Novosibirsk, Russia*

<sup>5</sup>*Department of Physics, Istanbul Technical University, Istanbul, Turkey*

P06 Evanescent Optical Trapping Method for Localization and Decontamination of Viruses and Microorganisms

**N. Ciobanu<sup>1,2</sup>, I.N. Mihailescu<sup>3</sup>, C. Ristoscu<sup>3</sup>, M. Turcan<sup>2</sup>, T. Pislari<sup>2</sup>, N. Enaki<sup>2</sup>**

<sup>1</sup>*Department of Human Physiology and Biophysics, State University of Medicine and Pharmacy "Nicolae Testemitanu", Chisinau, Moldova*

<sup>2</sup>*Institute of Applied Physics, Academy of Sciences of Moldova, Chisinau, Moldova*

<sup>3</sup>*National Institute for Lasers, Plasma and Radiation Physics, Bucharest, Romania*

P07 Production and photo-excitation of nuclear isomers at ELI-NP

**L. D'Alessi<sup>1</sup>, Y. Xu<sup>1</sup>, M. Zeng<sup>1</sup>, S. Aogaki<sup>1</sup>, O. Tesileanu<sup>1</sup>, K. Homma<sup>2,3</sup>, H. Utsunomiya<sup>4</sup>**

<sup>1</sup>*ELI-NP, "Horia Hulubei" National Institute for Physics and Nuclear Engineering, Magurele, Romania*

<sup>2</sup>*Graduate School of Science, Hiroshima University, Higashihiroshima, Hiroshima, Japan*

<sup>3</sup>*International Center for Zetta-Exawatt Science and Technology, Ecole Polytechnique, France*

<sup>4</sup>*Department of Physics, Konan University, 8-9-1, Okamoto, Higashi-nada, Kobe, Japan*

P08 Material analyses via calibration-free laser-induced breakdown spectroscopy: influence of plasma nonuniformity on measurement accuracy

**J. Hermann<sup>1</sup>, E. Axente<sup>2</sup>, C. Gerhard<sup>3</sup>, C. Dutouquet<sup>4</sup>**

<sup>1</sup>*LP3, CNRS/Aix-Marseille Université, Marseille, France*

<sup>2</sup>*LSPI Laboratory, National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania*

<sup>3</sup>*HAWK-University of Applied Sciences, Laboratory for Laser and Plasma Technologies, Göttingen, Germany*

<sup>4</sup>*INERIS/DRC/CARA/NOVA, Verneuil-en-Halatte, France*

P09 Principal Component Analysis of Raman spectra for Nanoparticle Auto-Classification

**A. G. Ilie<sup>1,2</sup>, M. Scarisoreanu<sup>1</sup>, I. Morjan<sup>1</sup>, E. Dutu<sup>1</sup>**

<sup>1</sup>*National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania,*

<sup>2</sup>*University of Bucharest, Faculty of Physics, Bucharest, Romania*



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P10 **Molecular Dynamics Simulations of Laser Ablation in Silicon and Germanium: the Influence of Electron-Temperature dependent Interactions**

**A. Kiselev, J. Roth**

*Institute for Functional Materials and Quantum Technologies, University of Stuttgart, Germany*

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P11 **Experimental thin film coatings for engineering super lens tuned in UV and Visible**

**V. R. Medianu, M. Oane**

*National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania*

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P12 **Numerical Analysis of Long Period Grating Fiber Sensor Fabrication Using Thermal Processing**

**S. Miclos<sup>1</sup>, D. Savastru<sup>1</sup>, R. Savastru<sup>1</sup>, I. Lancranjan<sup>1</sup>**

*<sup>1</sup>The National Institute of Research and Development for Optoelectronics - INOE 2000, Magurele, Ilfov, Romania*

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P13 **The thermal field in laser – double Nano-particles layered interaction**

**M. Oane, R. V. Medianu, O. Pacala<sup>1</sup>**

*National Institute for Lasers, Plasma and Radiation Physics (NILPRP), Magurele, Romania*

*<sup>1</sup>Institute of Atomic Physics, Magurele, Romania*

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P14 **Laser Generation of Cavitation Micro- and Nanobubbles near Contact Particle Lens Array: A Prospective to New Optoacoustical Devices**

**A. Pikulin, A. Reyman, V. Kamensky, N. Bityurin**

*Institute of Applied Physics of Russian Academy of Sciences, Nizhny Novgorod, Russia*

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P15 **Plasmonic particle mediated laser alteration of material**

**A.A. Smirnov, A. Pikulin, N. Sapogova, N. Bityurin**

*Institute of Applied Physics of Russian Academy of Sciences, Nizhny Novgorod, Russia*

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P16 **Ultrashort laser beam focusing into bulk glass: Modeling based on Maxwell's and non-linear Schrödinger equations and effects of boundary condition**

**V.P. Zhukov<sup>1,2</sup>, N.M. Bulgakova<sup>3,4</sup>, M.P. Fedoruk<sup>1,5</sup>**

*<sup>1</sup>Institute of Computational Technologies SB RAS, Novosibirsk, Russia*

*<sup>2</sup>Novosibirsk State Technical University, Novosibirsk, Russia*

*<sup>3</sup>HiLASE Centre, Institute of Physics ASCR, Czech Republic*

*<sup>4</sup>Institute of Thermophysics SB RAS, Novosibirsk, Russia*

*<sup>5</sup>Novosibirsk State University, Novosibirsk, Russia*

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P17 **Toward modeling of interaction of dichromatic laser pulses with transparent dielectrics**

**V.P. Zhukov<sup>1,2</sup>, N.M. Bulgakova<sup>3,4</sup>**

*<sup>1</sup>Institute of Computational Technologies SB RAS, Novosibirsk, Russia*

*<sup>2</sup>Novosibirsk State Technical University, Novosibirsk, Russia*

*<sup>3</sup>HiLASE Centre, Institute of Physics ASCR, Czech Republic*

*<sup>4</sup>Institute of Thermophysics SB RAS, Novosibirsk, Russia*

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## Fundamental phenomena of laser-matter interactions

P18 **Laser-induced damage thresholds of gold, silver and their alloys in air and water**

**A.V. Bulgakov, S.V. Starinskiy, Yu.G. Shukhov**

*S.S. Kutateladze Institute of Thermophysics SB RAS, Novosibirsk, Russia*

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P19 **Femtosecond time-resolved ellipsometry for measuring the ultrafast excitation dynamics in dielectric materials**

**L. Haahr-Lillevang, T. B. Reynisson, P. Balling**

*Department of Physics and Astronomy, Aarhus University, Denmark*

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P20 **Time-resolved electrical investigations of transient plasmas generated by femtosecond laser ablation of various metallic targets**

**S.A. Irimiciuc<sup>1,2</sup>, S. Gurlui<sup>2</sup>, P. Nica<sup>3</sup>, M. Agop<sup>3</sup>, C. Focsa<sup>1</sup>**

*<sup>1</sup>Laboratoire de Physique des Lasers, Atomes et Molécules, Université Lille 1, Villeneuve d'Ascq, France*

*<sup>2</sup>Faculty of Physics, Alexandru Ioan Cuza University, Iasi, Romania*

*<sup>3</sup>Department of Physics, Gh. Asachi Technical University, Iasi, Romania*

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P21 **Selective carbonized patterning on the surface of polyimide film using a 355nm UV laser**

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P22 **High Power Laser Irradiation of Pure and Mixed Be/C/W Films Prepared by TVA Method**

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P23 **Nonlinear optical studies on 1,2,3,4,5,6,7,8-octahydro-9hydroxiacridine-10-oxide thin films deposited by matrix-assisted pulsed laser evaporation (MAPLE)**

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P24 **9-(2-Furyl)-1,2,3,4,5,6,7,8-octahydro-10-oxide thin films grown by matrix-assisted pulsed laser evaporation for nonlinear optical applications**

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P25 **Nonlinear optical properties studied on thin films of 2-(2,4-dibromophenyl)-1H-benzo[d]imidazole by matrix-assisted pulsed laser (MAPLE) evaporation**

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P26 **Analytical expansion of vector complex source vortex beams into vector spherical harmonics and their interaction with a nanoparticle**

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P27 **Modeling of Photoinduced Nanoparticle Growth in Inhomogeneous Structured Polymers**

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**Laser Imaging**

P28 **Combined spectral – domain optical coherence tomography and hyperspectral imaging for tissue analysis: preliminary results**

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P29 **Quantitative phase imaging of live cells**

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P30 **Dual Imaging System for Tumor Assessment: Diffuse Optical Tomography and Hyperspectral Fluorescence**

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P31 **Refractive Index Imaging with Nanoscale Resolution Enabled by Laser Near-Field Dipole Excitation**

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## Dynamics and diagnostics of photo-excited processes

### P32 X-ray and pulsed UV to NIR optical excitation of luminescence in doped nanoparticles for bioimaging and spectral converters

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### P33 Analysis of thin films for micro-electronics via laser-induced breakdown spectroscopy

E. Axente<sup>1</sup>, J. Hermann<sup>2</sup>, G. Socol<sup>1</sup>, C.R. Luculescu<sup>1</sup>, P. Ionescu<sup>3</sup>, D. Pantelica<sup>3</sup>, V. Craciun<sup>1</sup>

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### P34 Compositional analyses of steel via laser-induced breakdown spectroscopy

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### P35 Quantitative phase imaging of neuronal networks with programmable illumination

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### P36 Experimental set-up for liquid phase monitoring during laser processing of metals

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### P37 CW versus pulsed laser excited emission properties of (Yb<sup>3+</sup>) Ho<sup>3+</sup> (co-) doped CeO<sub>2</sub> nanoparticles

I. Porosnicu<sup>1</sup>, D. Avram<sup>1</sup>, C. Tiseanu<sup>1</sup>

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### P38 Plasma generated during underwater laser shock processing

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### P39 Investigation of the effect of laser parameters on the target, plume and plasma behavior during and after laser-solid interaction

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### P40 Laser induced break down spectroscopy on soil samples

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## Photo-excited chemical processes

### P41 Photosensitized cleavage of some olefins as potential linkers to be used in drug delivery

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P42 **2D Direct laser writing of polymer graphene composites**

**G. Epurescu<sup>1</sup>, A. Chibac<sup>2</sup>, A. Matei<sup>1</sup>, I. Ion<sup>3</sup>, E.C. Buruiana<sup>2</sup>, F. Stokker<sup>1</sup>, T. Buruiana<sup>2</sup>**

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P43 **Susceptibility of bacteria to photo-chemically generated agents starting from phenothiazine derivatives**

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**Photo/laser-induced desorption from surfaces**

P44 **Ultrafast Epitaxial Growth Kinetics in Pulsed LaserAnnealed Solution-Derived Functional Oxide Thin Films**

**A. Queraltó<sup>1</sup>, A. Pérez del Pino<sup>1</sup>, M. de la Mata<sup>1,2</sup>, J. Arbiol<sup>2,3</sup>, M. Tristany<sup>1</sup>, X. Obradors<sup>1</sup>, T. Puig<sup>1</sup>**

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**Resonant and non-resonant processes in photo/laser-induced materials processing**

P45 **Laser-Driven Broadband Fibre Source with Spectral Compensation using a High-Voltage Pulse LED**

**M. W. Hung, W. -T. Hsiao, K. -C. Huang, Y.-H. Lin**

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P46 **Spectroscopic investigations of novel pharmaceuticals: stability and laser beam resonant interaction**

**A. Smarandache<sup>1</sup>, A. Pascu<sup>1</sup>, M. Boni<sup>1,2</sup>, I. Andrei<sup>1</sup>, J. Handzlik<sup>3</sup>, K. Kiec-Kononowicz<sup>3</sup>, A. Staicu<sup>1</sup>, M.-L. Pascu<sup>1</sup>**

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**Surface nanostructuring and nanoripple formation**

P47 **Microscopical and Raman investigations of periodical surface structures fabricated by picosecond visible laser irradiation of carbon thin films**

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P48 **Ultrafast time-resolved pump-probe investigation of LIPSS formation by multiple femtosecond laser pulses**

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P49 **Inducing subwavelength periodic nanostructures on multilayer NiPd thin film by low-fluence femtosecond laser beam**

**A. G. Kovačević<sup>1</sup>, S. Petrović<sup>2</sup>, V. Lazović<sup>1</sup>, D. Peruško<sup>2</sup>, D. Pantelić<sup>1</sup>, B. M. Jelenković<sup>1</sup>**

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P50 **Fabrication of Ag nanoparticle array on different substrates for application in SERS**

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**P51 Femtosecond laser induced surface structures on silicon: effects of the ambient pressure**

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**P52 Improving Surface Density of Laser Nanostructuring with Contact Particle Lens Arrays: Two-Color Beams, Resonant Focusing, and Nonspherical Particles**

**A. Pikulin, N. Mitin, A. Afanasiev, V. Bredikhin, I. Ilyakov, B. Shishkin, R. Akhmedzhanov, N. Biturkin**

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**P53 Self-organization of single-crystals as ripple patterns through laser ablation of ionic salts solutions**

**I. Sandu<sup>1</sup>, I. Urzica<sup>1</sup>, A. M. Niculescu<sup>1,2</sup>, C. T. Fleaca<sup>1</sup>, F. Dumitrache<sup>1</sup>, M. Badiceanu<sup>3</sup>**

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**3D additive manufacturing**

**P54 Development of sputter-less selective laser melting in vacuum for 3D fabrication of titanium alloy**

**Y. Sato<sup>1</sup>, M. Tsukamoto<sup>1</sup>, Y. Yamashita<sup>2</sup>, S. Masuno<sup>1</sup>, T. Ohkubo<sup>3</sup>, K. Yamashita<sup>4</sup>, N. Abe<sup>1</sup>**

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**P55 Hybrid femtosecond laser processing of biomimetic architectures with lab-on-a-chip devices for cancer cell study**

**F. Sima<sup>1,2</sup>, D. Wu<sup>2</sup>, J. Xu<sup>2</sup>, K. Midorikawa<sup>2</sup>, K. Sugioka<sup>2</sup>**

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**P56 Femtosecond laser-induced reductive sintering to fabricate Ni-based alloy micropatterns**

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**Manipulated/shaped beam processing**

**P57 Optical arrangement of gold nanoparticles by array of Bessel-like beams**

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**Ultrahigh-power laser applications**

**P58 Alignment laser procedure and beam wavefront optimization using adaptive optics loop**

**I. Barbut<sup>1</sup>, L. Neagu<sup>1,2</sup>, M. Serbanescu<sup>2</sup>, I. Dancus<sup>1</sup>, R. Ungureanu<sup>2</sup>, G. Cojocaru<sup>2</sup>, P. Ghenuche<sup>1</sup>, M. O. Cernaianu<sup>1</sup>, I. Nicolae<sup>2</sup>, E. Lalla<sup>1</sup>, D. Ursescu<sup>1</sup>**

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**P59 Dose calculations in cell monolayers from proton beams generated by femtosecond lasers**

**M. Bobeica<sup>1</sup>, S. Aogaki<sup>1</sup>, M. Tomut<sup>2</sup>, T. Asavei<sup>1</sup>, M. Cernaianu<sup>1</sup>, P. Ghenuche<sup>1</sup>, F. Negoita<sup>1</sup>, D. Stutman<sup>1,3</sup>**

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**P60 Dielectric thin films obtained by laser-plasma methods for high power laser optics**

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P61 **Solid Target Remote Manipulator System for High Power (PW) Laser Experiments**

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P62 **Experimental Setup for Detection of Accelerated Particles Generated by High Power (PW) Laser-Solid Target Interaction**

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**Interactions with organic and biomaterials and applications including MALDI and laser microprobe mass analysis**

P63 **In vitro biological performance of multifunctional composite coatings**

**P. Neacsu<sup>1</sup>, V. Dinca<sup>2</sup>, S. Brajnicov<sup>2,3</sup>, V. Marascu<sup>2,4</sup>, L. Rusen<sup>2</sup>, L.N. Dumitrescu<sup>2,3</sup>, M. Dinescu<sup>2</sup>, A. Cimpean<sup>1</sup>**

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P64 **Femtosecond laser irradiation to fluorescent molecules-loaded poly(lactic-co-glycolic acid)**

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**Lasers in nanobiomedicine**

P65 **Isoflavonoid Thin Films Fabricated By MAPLE For Improved Resistance of Biomedical Surfaces to Microbial Colonization**

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P66 **Surface modification on medical grade PDMS by fs-laser irradiation**

**E. Iordanova<sup>1</sup>, G. Yankov<sup>1</sup>, N. E. Stankova<sup>2</sup>, Ru. G. Nikov<sup>2</sup>, R. G. Nikov<sup>2</sup>, P. A. Atanasov<sup>2</sup>, K. N. Kolev<sup>3</sup>, Dr. M. Tatchev<sup>3</sup>, M. Grozeva<sup>1</sup>**

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P67 **Mesenchymal stem cells osteogenic fate on excimer lasers designed bone pits topographies**

**L. E. Sima<sup>1</sup>, M. Icriverzi<sup>1,2</sup>, K. Bohlen<sup>3</sup>, E.C. Siringil<sup>4</sup>, T. Jäger<sup>5</sup>, K. Wasmer<sup>4</sup>, P. Hoffmann<sup>4</sup>, M. Dinescu<sup>6</sup>, A. Roseanu<sup>1</sup>, A. Cimpean<sup>2</sup>, V. Dinca<sup>4,6</sup>**

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P68 **Photophysics of single wall carbon nanotubes covalently functionalised with porphyrin photosensitizers**

A. Staicu<sup>1</sup>, A. Pascu<sup>1</sup>, A. Smarandache<sup>1</sup>, T. Alexandru<sup>1</sup>, M.L. Pascu<sup>1</sup>

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P69 **Antimicrobial calopocarpin-polyvinylpyrrolidone composite coatings fabricated by MAPLE**

A. Visan<sup>1</sup>, M. Miroiu<sup>1</sup>, M.C. Chifriuc<sup>2</sup>, I.N. Mihailescu<sup>1</sup>, G. Socol<sup>1</sup>, R. Cristescu<sup>1</sup>

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**Photon-sources and laser systems for photo excited processes**

P70 **Fluorescence emission structure of a side-pumped Rh6G dye-doped micro-droplet**

I. R. Andrei<sup>1</sup>, M. Boni<sup>1,2</sup>, A. Staicu<sup>1</sup>, M. L. Pascu<sup>1,2</sup>

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<sup>2</sup>Faculty of Physics, University of Bucharest, Magurele, Romania

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**Photo-catalysis**

P71 **Titanium oxide / graphene oxide spin coated composite material for photocatalytic applications**

A. Datcu<sup>1,2</sup>, M. L. Mendoza<sup>2</sup>, A. Pérez del Pino<sup>3</sup>, C. Logofatu<sup>4</sup>, C. Luculescu<sup>5</sup>, E. György<sup>1,3</sup>

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<sup>4</sup>National Institute for Materials Physics, Magurele, Romania

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P72 **Photocatalytic degradation of methylene blue by a combination of TiO<sub>2</sub> and charcoal**

N. Popa<sup>1</sup>, M. Visa<sup>1</sup>

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**Poster Session 2: Wednesday, August 31, 2016, 17:15 – 19:00**

Chairmen: S. Canulescu, L. Canioni, J.M. Ferreira, M. Asscher

**Deposition and coating of thin films, multilayers, and nanostructured materials**

P73 **Film continuity studies of refractory metal nano-layers obtained using an improved set-up of the high voltage anodic plasma**

M. Badulescu<sup>1</sup>, A. Anghel<sup>1</sup>, A. M. Vlaicu<sup>2</sup>, C. Surdu-Bob<sup>1</sup>, R. Gavrilă<sup>3</sup>, B. Bită<sup>3</sup>

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<sup>2</sup>National Institute for Materials Physics, Magurele – Romania

<sup>3</sup>Microtechnology Institute – Baneasa, Romania

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P74 **Comparison between HiPIMS and PLD Deposition of ZnO and TiO<sub>2</sub> thin films**

N. Becherescu<sup>1,5</sup>, I.N. Mihailescu<sup>2</sup>, G. Socol<sup>2</sup>, C. Luculescu<sup>2</sup>, V. Tiron<sup>3</sup>, G. E. Stan<sup>4</sup>, M. Udrea<sup>5</sup>

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<sup>4</sup>National Institute of Materials Physics, Magurele, Romania

<sup>5</sup>Apel Laser SRL, Mogosoia, Romania

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P75 **Biological evaluation and surface characteristics of Si-DLC and Ti-DLC coatings deposited by magnetron sputtering**

D. Bociaga<sup>1a</sup>, M. Kaminska<sup>1b</sup>, A. Sobczyk-Guzenda<sup>1c</sup>, L. Swiatek<sup>1a</sup>, K. Jastrzebski<sup>1a</sup>, A. Olejnik<sup>1a</sup>

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<sup>b</sup>Division of Biophysics

<sup>c</sup>Division of Coatings Engineering and Non-metallic Materials

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- P76 **PLD and MAPLE deposited WO<sub>3</sub> thin films for gas sensors**  
**S. Boyadjiev<sup>1,2</sup>, V. Georgieva<sup>1</sup>, N. Stefan<sup>3</sup>, N. Mihailescu<sup>3</sup>, A. Visan<sup>3</sup>, I. N. Mihailescu<sup>3</sup>, K. A. Gesheva<sup>4</sup>, I. M. Szilágyi<sup>2,5</sup>**  
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<sup>4</sup>Central Laboratory of Solar Energy and New Energy Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria  
<sup>5</sup>Budapest University of Technology and Economics, Department of Inorganic and Analytical Chemistry, Hungary
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- P77 **Copolymer PLCL-PEG-PLCL functional bio-coating obtained by Matrix Assisted Pulsed Laser Evaporation: a deposition parametric study**  
**S. Brajnicov<sup>1,2</sup>, V. Marascu<sup>1,3</sup>, L. Rusen<sup>1</sup>, A. Moldovan<sup>1</sup>, V. Dinca<sup>1</sup>, M. Dinescu<sup>1</sup>**  
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<sup>3</sup>University of Bucharest, Faculty of Physics, Magurele, Romania
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- P78 **Effects of the Deposition Geometry on Structure and Stoichiometry of PLD Grown Films**  
**D. Craciun<sup>1</sup>, O. Fufa<sup>1</sup>, G. Socol<sup>1</sup>, D. Cristea<sup>2</sup>, D. Pantelica<sup>3</sup>, P. Ionescu<sup>3</sup>, R. Trusca<sup>4</sup>, E. Lambers<sup>5</sup>, V. Craciun<sup>1</sup>**  
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<sup>4</sup>Polytechnic University of Bucharest, Bucharest, Romania  
<sup>5</sup>MAIC, University of Florida, Gainesville, USA
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- P79 **Pulsed Laser Deposition of Nanocrystalline and Amorphous Biocompatible Protective Coatings**  
**V. Craciun<sup>1</sup>, G. Socol<sup>1</sup>, G. Dorcioman<sup>1</sup>, C. Radu<sup>1</sup>, O. Fufa<sup>1</sup>, D. Craciun<sup>1</sup>, D. Cristea<sup>2</sup>, L. Floroian<sup>2</sup>, M. Badea<sup>2</sup>, D. Pantelica<sup>3</sup>, P. Ionescu<sup>3</sup>, R.C. Popescu<sup>3</sup>, B. S. Vasile<sup>4</sup>, R. Trusca<sup>4</sup>**  
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<sup>3</sup>Horia Hulubei National Institute for Physics and Nuclear Engineering, Magurele, Romania  
<sup>4</sup>Polytechnic University of Bucharest, Bucharest, Romania.
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- P80 **Properties of tungsten, magnesium and carbon composite thin films deposited by PLD**  
**L.N. Dumitrescu<sup>1,2</sup>, V. Ion<sup>1</sup>, A. Moldovan<sup>1</sup>, A. Bercea<sup>1,3</sup>, D. Colceag<sup>1</sup>, M. Dinescu<sup>1</sup>**  
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<sup>3</sup>University of Bucharest, Faculty of Physics, Bucharest, Romania
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- P81 **Polyvinylidene fluoride thin films deposited by MAPLE**  
**L.N. Dumitrescu<sup>1,2</sup>, I. Tirca<sup>1,2</sup>, V. Ion<sup>1</sup>, A. Moldovan<sup>1</sup>, V. Marascu<sup>1,3</sup>, V. Dinca<sup>1</sup>, M. Dinescu<sup>1</sup>**  
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<sup>2</sup>University of Craiova, Faculty of Sciences, Craiova, Romania.  
<sup>3</sup>University of Bucharest, Faculty of Physics, Bucharest, Romania
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- P82 **Laser techniques for deposition and microstructuring of layered double hydroxides and organo-modified layered double hydroxides**  
**M. Dumitru<sup>1</sup>, R. Birjega<sup>1</sup>, A. Vlad<sup>1</sup>, S. Brajnicov<sup>1</sup>, R. Zavoianu<sup>2</sup>, M.C. Corobea<sup>3</sup>, M. Dinescu<sup>1</sup>**  
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<sup>3</sup>National R.&S. Institute for Chemistry and Petrochemistry, ICECHIM, Bucharest, Romania
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- P83 **Surface modification of PVC for biomedical applications**  
**O. C. Duta<sup>1</sup>, D. Ficai<sup>1</sup>, A. Ficai<sup>1</sup>, M. C. Chifiriuc<sup>2</sup>, E. Andronescu<sup>1</sup>**  
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<sup>2</sup>Department of Microbiology, Faculty of Biology, University of Bucharest, Bucharest, Romania
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- P84 **In vitro assessment of reinforced biological hydroxyapatite thin films for implantology applications**  
**L. Duta<sup>1</sup>, A.C. Popescu<sup>1</sup>, G.E. Stan<sup>2</sup>, G. Popescu-Pelin<sup>1</sup>, I.N. Mihailescu<sup>1</sup>, P.E. Florian<sup>3</sup>, L.E. Sima<sup>3</sup>, A. Roseanu<sup>3</sup>, F.N. Oktar<sup>4,5,6</sup>**  
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<sup>5</sup>Department of Medical Imaging Techniques, School of Health Related Professions, Marmara University, Istanbul, Turkey  
<sup>6</sup>Nanotechnology and Biomaterials Application & Research Centre, Marmara University, Istanbul, Turkey
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- P85 **Laser processing of ferrocene thin films patterns for sensor application**  
**M. Filipescu, A. Palla Papavlu, A. Matei, V. Marascu, M. Dinescu**  
National Institute for Lasers, Plasma, and Radiation Physics, Magurele, Romania
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- P86 **Antimicrobial thin films based on ayurvedic plants extracts embedded in a polymeric matrix**  
**L. Floroian<sup>1</sup>, C. Ristoscu<sup>2</sup>, N. Mihailescu<sup>2</sup>, M. Badea<sup>1</sup>, E. Pozna<sup>1</sup>, M. Galca<sup>3</sup>, M. Moscatelli<sup>4</sup>, N. Pastori<sup>4</sup>, G. Candiani<sup>4</sup>, R. Chiesa<sup>4</sup>, I.N. Mihailescu<sup>2</sup>**  
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<sup>2</sup>National Institute for Lasers, Plasma and Radiation Physics, Măgurele, Romania  
<sup>3</sup>"Carol Davila" University of Medicine and Pharmaceuticals, Bucharest, Romania  
<sup>4</sup>Politecnico di Milano, Milano, Italy
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- P87 **Biocompatible HAP–Ag nanostructured coatings for titanium implants**  
**O. Fufă<sup>1,2</sup>, G. Socol<sup>1</sup>, A.M. Grumezescu<sup>1</sup>, E. Andronescu<sup>1</sup>, M. Socol<sup>3</sup>, R.C. Popescu<sup>1,4</sup>, A.M. Holban<sup>1,5</sup>**  
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<sup>5</sup>Microbiology and Immunology Department, Faculty of Biology, University of Bucharest, Romania
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- P88 **Oxide thin film transistors made by pulsed electron beam deposition**  
**F. Gherendi<sup>1</sup>, N.B. Mandache<sup>1</sup>, M. Nistor<sup>1</sup>**  
<sup>1</sup>National Institute for Lasers, Plasma and Radiation Physics, Plasma Physics and Nuclear Fusion Laboratory, Magurele, Romania
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- P89 **Zn<sub>1-x</sub>Fe<sub>x</sub>O thin films grown by pulsed laser deposition: from transparent Fe-diluted ZnO wurtzite to magnetic Zn-diluted Fe<sub>3</sub>O<sub>4</sub> spinel**  
**M. Nistor<sup>1</sup>, J. Perrière<sup>2,3</sup>, C. Hebert<sup>2,3</sup>, E. Millon<sup>4</sup>, J.J. Ganem<sup>2,3</sup>, N. Jedrecy<sup>2,3</sup>**  
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<sup>3</sup>CNRS, UMR 7588, INSP, Paris, France  
<sup>4</sup>GREMI, UMR 7344 CNRS-Université d'Orléans, France
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- P90 **Selection of antimicrobial Silver-doped Carbon structures by combinatorial pulsed laser deposition**  
**C. Hapenciu<sup>1</sup>, I. N. Mihailescu<sup>1,\*</sup>, D. Bociaga<sup>2</sup>, G. Socol<sup>1</sup>, G. E. Stan<sup>3</sup>, M. C. Chifiriuc<sup>4,5</sup>, C. Bleotu<sup>6</sup>, M. A. Husanu<sup>2</sup>, C. Luculescu<sup>1</sup>, G. Popescu-Pelin<sup>1,7</sup>, L. Duta<sup>1</sup>, I. Negut<sup>1,7</sup>, C. Besleaga<sup>3</sup>, I. Zgura<sup>3</sup>, F. Miculescu<sup>8</sup>**  
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<sup>7</sup>Faculty of Physics, University of Bucharest, Magurele, Romania  
<sup>8</sup>Politehnica University of Bucharest, Faculty of Materials Science and Engineering, Romania
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- P91 **In vitro degradability and bioactivity of hybrid coatings containing Lactoferrin and Hydroxyapatite embedded in a copolymer matrix**  
**M. Icriverzi<sup>1,2</sup>, L. E. Sima<sup>1</sup>, L. Rusen<sup>3</sup>, S. Brajnicov<sup>3,4</sup>, V. Ion<sup>3</sup>, A. Bonciu<sup>3,5</sup>, L.N. Dumitrescu<sup>3,4</sup>, M. Dinescu<sup>3</sup>, A. Cimpean<sup>2</sup>, A. Roseanu<sup>1</sup>, V. Dinca<sup>3</sup>**  
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<sup>4</sup>University of Craiova, Faculty of Mathematics and Natural Sciences, Craiova, Romania  
<sup>5</sup>University of Bucharest, Faculty of Physics, Magurele, Romania
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- P92 **Biocompatibility studies on (Ba<sub>1-x</sub>Ca<sub>x</sub>)(Zr<sub>y</sub>Ti<sub>1-y</sub>)O<sub>3</sub> thin films obtained by laser deposition methods**  
**V. Ion<sup>1</sup>, N.D. Scarisoreanu<sup>1</sup>, F. Craciun<sup>2</sup>, R. Birjega<sup>1</sup>, A. Bercea<sup>1</sup>, A. Bonciu<sup>1</sup>, A. Moldovan<sup>1</sup>, V. Dinca<sup>1</sup>, M. Dinescu<sup>1</sup>, L.E. Sima<sup>3</sup>, M. Icriverzi<sup>3</sup>, A. Roseanu<sup>3</sup>**  
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<sup>3</sup>Institute of Biochemistry of the Romanian Academy, Bucharest, Romania
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- P93 **Effect of ZrO<sub>2</sub> coating on the electrochemical behavior and surface properties of 316L stainless steel**  
**M. Iordoc, P. Barbu, A. Teisanu, M.V. Lungu, I. Iordache**  
National Institute for Research and Development in Electrical Engineering ICPE-CA, Department of Efficiency in Energy Conversion and Consumption, Bucharest, Romania
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- P94 **Biocompatible Diamond-Like Carbon layers modified by ion bombardment during growth**  
**T. Kocourek<sup>1,2</sup>, M. Jelínek<sup>1,2</sup>, P. Písařík<sup>1,2</sup>, J. Remsa<sup>1,2</sup>, M. Janovská<sup>3</sup>, M. Landa<sup>3</sup>, J. Zemek<sup>1</sup>, V. Havránek<sup>4</sup>**  
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<sup>3</sup>*Institute of Thermomechanics of the Czech Academy of Sciences, Praha 8, Czech Republic*  
<sup>4</sup>*Nuclear Physics Institute of the Czech Academy of Sciences, Czech Republic*
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- P95 **Zinc oxide- a material for the future**  
**L.N. Leonat<sup>1</sup>, A. Vlad<sup>2</sup>, A. Bratulescu<sup>1</sup>, M. Lungu<sup>1</sup>**  
<sup>1</sup>*The National Institute for Electrical Engineering, ICPE-CA, Bucharest, Romania*  
<sup>2</sup>*The National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania*
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- P96 **Diffusion in thermoelectric multilayers observed by SIMS**  
**J. Lorincik<sup>1</sup>, D. Veselá<sup>1</sup>, J. Remsa<sup>2</sup>, T. Kocourek<sup>2</sup>, M. Jelínek<sup>2</sup>**  
<sup>1</sup>*Research Centre Rez, Husinec-Rez, Czech Republic*  
<sup>2</sup>*Institute of Physics of the Czech Academy of Sciences v.v.i., Czech Republic*
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- P97 **Enhanced ZnO and Ag-ZnO Nanostructured Coatings Grown on Stainless Steel for Medical Applications**  
**M. V. Lungu<sup>1</sup>, A. Sobetkii<sup>2</sup>, A.A. Sobetkii<sup>2</sup>, N. Mihăilescu<sup>3</sup>, D. Pătroi<sup>1</sup>, L. Leonat<sup>1</sup>, E. M. Lungulescu<sup>1</sup>, M. Iordoc<sup>1</sup>, L. E. Radu<sup>1</sup>, N. Stancu<sup>1</sup>, M. Lucaci<sup>1</sup>, C. D. Cîrstea<sup>1</sup>, I. Ion<sup>1</sup>, V. Tsakiris<sup>1</sup>, M. C. Chifiriuc<sup>4,5</sup>**  
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<sup>4</sup>*University of Bucharest, Faculty of Biology, Microbiology Department, Bucharest, Romania;*  
<sup>5</sup>*Research Institute of the University of Bucharest – ICUB, Life, Environment and Earth Sciences Division, Romania*
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- P98 **The selection of optimal deposition conditions for producing thin films of Mg-Al LDH using laser techniques**  
**A. Marinescu<sup>1</sup>, A. Matei<sup>1</sup>, A. Vlad<sup>1</sup>, R. Birjega<sup>1</sup>, M. Filipescu<sup>1</sup>, V. Marascu<sup>1</sup>, M. Dinescu<sup>1</sup>, I. Tirca<sup>1</sup>, R. Zavoianu<sup>2</sup>, O. D. Pavel<sup>2</sup>, C. Corobea<sup>3</sup>**  
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<sup>2</sup>*University of Bucharest, Faculty of Chemistry, Bucharest, Romania*  
<sup>3</sup>*National R&S Institute for Chemistry and Petrochemistry, Bucharest, Romania*
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- P99 **Layered double hydroxides thin films grown by laser techniques for food additives detection**  
**A. Matei<sup>1</sup>, R. Birjega<sup>1</sup>, A. Vlad<sup>1</sup>, A. Palla Papavlu<sup>1</sup>, M. Filipescu<sup>1</sup>, V. Marascu<sup>1</sup>, R. Zavoianu<sup>2</sup>, O.D. Pavel<sup>2</sup>, M.C. Corobea<sup>3</sup>, M. Dinescu<sup>1</sup>**  
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<sup>3</sup>*National R.&S. Institute for Chemistry and Petrochemistry, ICECHIM, Bucharest, Romania*
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- P100 **Nanostructured bioactive glass thin films synthesized by pulsed laser deposition onto biodegradable metallic implants**  
**N. Mihailescu<sup>1</sup>, A. Ficiu<sup>2</sup>, C. Ristoscu<sup>1</sup>, F. Sima<sup>1</sup>, C.N. Mihailescu<sup>1</sup>, L. Floroian<sup>3</sup>, M. Sopronyi<sup>1</sup>, Mariana C. Chifiriuc<sup>4</sup>, I. Negut<sup>4</sup>, C. Bleotu<sup>5</sup> and I. N. Mihailescu<sup>1</sup>**  
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<sup>4</sup>*Faculty of Biology, University of Bucharest, Research Institute of the University of Bucharest, Romania*  
<sup>5</sup>*“Stefan S. Nicolau” Institute of Virology, Bucharest, Romania*
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- P101 **Low transition temperature in strain-free VO<sub>2</sub>/TiO<sub>2</sub> epitaxial thin films**  
**C. N. Mihailescu<sup>1,2</sup>, E. Symeou<sup>1</sup>, E. Svoukis<sup>1</sup>, R. F.Negrea<sup>3</sup>, C.Ghica<sup>3</sup>, V. Teodorescu<sup>3</sup>, C. Negrila<sup>3</sup>, J. Giapintzakis<sup>1</sup>**  
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<sup>3</sup>*National Institute of Materials Physics, Magurele, Romania*
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- P102 **MAPLE Deposition of Complex Hybrid Fe<sub>3</sub>O<sub>4</sub>-PEDOT:PSS-PLGA Coatings**  
**F. M. Miroiu<sup>1</sup>, N. Stefan<sup>1</sup>, A. I. Visan<sup>1</sup>, C. Luculescu<sup>1</sup>, V. Grumezescu<sup>1</sup>, C. Radu<sup>1</sup>, R. Cristescu, M. Socol<sup>2</sup>, R. C. Popescu<sup>3</sup>, D. Savu<sup>3</sup>, M. Temelie<sup>3</sup>, G. Socol<sup>1</sup>**  
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- P103 **Functionalized Graphene Oxide nanoscale thin films for melanoma therapy**  
**I. Negut<sup>1</sup>, V. Grumezescu<sup>1</sup>, C. Hapenciuc<sup>1</sup>, C.R. Luculescu<sup>1</sup>, F. Sima<sup>1</sup>, L.E. Sima<sup>2</sup>, E. Axente<sup>1</sup>**  
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<sup>2</sup>*Department of Molecular Cell Biology, Institute of Biochemistry, Romanian Academy, Bucharest, Romania*
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- P104 **MAPLE fabricated thin coatings based on magnetite nanoparticles embedded into biopolymeric spheres with resistance to microbial colonization**  
**V. Grumezescu<sup>1,2</sup>, A.M. Holban<sup>3,6</sup>, M.C. Chifiriuc<sup>3,6</sup>, A.M. Grumezescu<sup>2</sup>, R. Trusca<sup>4</sup>, F. Iordache<sup>5</sup>, M. Patachia<sup>1</sup>, G. Socol<sup>1</sup>**  
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<sup>5</sup>*Institute of Cellular Biology and Pathology of Romanian Academy, "Nicolae Simionescu", Romania*  
<sup>6</sup>*Research Institute of the University of Bucharest, Romania*
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- P105 **Investigation of Au nanostructures fabricated by laser ablation in air**  
**Ru. Nikov<sup>1</sup>, A. Dikovska<sup>1</sup>, N. Nedyalkov<sup>1</sup>**  
<sup>1</sup>*Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria*
- 
- P106 **Improved stability of LSCF thin films cathode with Gd-doped ceria interface deposited by PLD on YSZ electrolyte**  
**R. Pascu<sup>1</sup>, G. Epurescu<sup>1</sup>, S. Somacescu<sup>2</sup>, N. Cioatera<sup>3</sup>, S. Brajnicov<sup>1</sup>, R. Birjega<sup>1</sup>, C. Luculescu<sup>1</sup>, B. Mitu<sup>1</sup>**  
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<sup>2</sup>*„Ilie Murgulescu” Institute of Physical Chemistry of the Romanian Academy, Bucharest, Romania*  
<sup>3</sup>*University of Craiova, Craiova, Romania*
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- P107 **Pulsed Laser Deposition of Thin Catalyst Layers for PEM Fuel Cells**  
**I. Perović<sup>1</sup>, D. Milovanović<sup>1</sup>, S. Maslovara<sup>1</sup>, P. Laušević<sup>1</sup>, C. Ristoscu<sup>2</sup>, G. Socol<sup>2</sup>, I. N. Mihailescu<sup>2</sup>, B. Radak<sup>1</sup>**  
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<sup>2</sup>*National Institute for Lasers, Plasma, and Radiation Physics, Magurele, Romania*
- 
- P108 **Fe<sub>3</sub>O<sub>4</sub>-polyaniline based coatings for biomedical applications**  
**G. Popescu-Pelin<sup>1,2</sup>, M. Socol<sup>3</sup>, R. C. Popescu<sup>4</sup>, D. Savu<sup>4</sup>, M. Temelie<sup>4</sup>, O. Fufa<sup>1</sup>, C. Florica<sup>3</sup>, C. Luculescu<sup>1</sup>, I. Zgura<sup>3</sup>, S. Banita<sup>1</sup>, I. N. Mihailescu<sup>1</sup>, G. Socol<sup>1</sup>**  
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- P109 **MAPLE of Graphene Oxide Nanocomposites**  
**A. Queraltó<sup>1</sup>, A. Datcu<sup>1</sup>, A. Pérez del Pino<sup>2</sup>, E. György<sup>1,2</sup>**  
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- P110 **Effect of aluminum electrode nano-patterning on the properties of the laser prepared arylenevinylene polymer based mixed layer**  
**O. Rasoga<sup>1</sup>, A. Stanculescu<sup>1</sup>, G. Socol<sup>2</sup>, A. M. Catargiu<sup>3</sup>, M. Grigoras<sup>3</sup>, C. Breazu<sup>1,4</sup>, M. Socol<sup>1</sup>, E. Matei<sup>1</sup>, F. Stanculescu<sup>4</sup>, M. Girtan<sup>5</sup>**  
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<sup>4</sup>*University of Bucharest, Faculty of Physics, Magurele, Romania*  
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- P111 **Structural and biological investigations of pulsed laser deposited thin films of biocomposites containing HA and foaming agents**  
**C. Ristoscu<sup>1</sup>, N. Mihailescu<sup>1</sup>, M. Sopronyi<sup>1</sup>, I. N. Mihailescu<sup>1</sup>, O. Gingu<sup>2</sup>, G. Sima<sup>3</sup>, C. Teisanu<sup>3</sup>, L. E. Sima<sup>4</sup>**  
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<sup>3</sup>*University of Craiova, Craiova, Romania*  
<sup>4</sup>*Department of Molecular Cell Biology, Institute of Biochemistry, Romanian Academy, Bucharest, Romania*
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- P112 **The influence of addition PbO and MnO on PZT thin films**  
**B.G. Sbarcea<sup>1</sup>, J. Neamtu<sup>1</sup>, A. Dumitru<sup>1</sup>, D. Patroi<sup>1</sup>, V. Marinescu<sup>1</sup>**  
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- P113 **Tungsten bronze  $\text{Sr}_x\text{Ba}_{1-x}\text{Nb}_2\text{O}_6$  and Ca-doped  $\text{Sr}_x\text{Ba}_{1-x}\text{Nb}_2\text{O}_6$  thin films by PLD for electro-optic and pyroelectric devices**  
N. D. Scarisoreanu<sup>1</sup>, R. Birjega<sup>1</sup>, A. Andrei<sup>1</sup>, V. Ion<sup>1</sup>, G. Stanciu<sup>1</sup>, M. Dinescu<sup>1</sup>  
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- P114 **Strain induced nanoscale phase fluctuations for enhanced dielectric behavior of  $(1-x)\text{Ba}(\text{Zr}_{0.2}\text{Ti}_{0.8})\text{O}_{3-x}(\text{Ba}_{0.7}\text{Ca}_{0.3})\text{TiO}_3$  ( $x = 0.45$ ) epitaxial thin films**  
N.D. Scarisoreanu<sup>1</sup>, V. Ion<sup>1</sup>, A. Bercea<sup>1</sup>, A. Moldovan<sup>1</sup>, A. Andrei<sup>1</sup>, F. Craciun<sup>2</sup>, R. Birjega<sup>1</sup>, M. Dinescu<sup>1</sup>  
<sup>1</sup>National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania  
<sup>2</sup>CNR-ISC, Istituto Dei Sistemi Complessi, Rome, Italy
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- P115 **Bi-Based Nanostructures Produced by Laser Ablation in Liquid and Their Functional Properties**  
N. D. Scarisoreanu<sup>1</sup>, A. Andrei<sup>1</sup>, V. Ion<sup>1</sup>, V. Teodorescu<sup>2</sup>, M. Dinescu<sup>1</sup>  
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<sup>2</sup>NIMP-National Institute of Materials Physics, Magurele, Romania
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- P116 **Organic heterostructures deposited by MAPLE on AZO substrate**  
G. Socol<sup>1</sup>, M Socol<sup>2</sup>, N. Preda<sup>2</sup>, A. Stanculescu<sup>2</sup>, C. Breazu<sup>2,3</sup>, F. Stanculescu<sup>3</sup>, M. Girtan<sup>4</sup>  
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<sup>3</sup>University of Bucharest, Faculty of Physics, Bucharest, Romania  
<sup>4</sup>Laboratoire de Photonique d'Angers, Université d'Angers, Angers, France
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- P117 **MAPLE fabrication of CaPs: Poly (3-hydroxybutyrate-co3-hydroxyvalerate) - based coatings as substrate for bone tissue engineering**  
G. Socol<sup>1</sup>, O. Rasoga<sup>2</sup>, M. Chiritoiu<sup>3</sup>, L. Sima<sup>3</sup>, V. Grumezescu<sup>1</sup>, G. Popescu-Pelin<sup>1</sup>, M. Socol<sup>2</sup>, I. Zgura<sup>2</sup>  
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<sup>2</sup>National Institute of Materials Physics, Magurele, Ilfov, Romania  
<sup>3</sup>Institute of Biochemistry, Bucharest, Romania
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- P118 **Wet chemical synthesis of ZnO-CdS composites with enhanced photocatalytic activity**  
G. Socol<sup>1</sup>, I. Zgura<sup>2</sup>, N. Preda<sup>2</sup>, L. Frunza<sup>2</sup>, L. Diamandescu<sup>2</sup>, M. Enculescu, L. Nedelcu<sup>2</sup>, C. P. Ganea<sup>2</sup>, S. Frunza<sup>2</sup>  
<sup>1</sup>National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania  
<sup>2</sup>National Institute of Materials Physics, Magurele, Romania
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- P119 **Mechanical and *in vitro* biological performance of bioglass coatings deposited by magnetron sputtering on dental implant fixtures**  
G.E. Stan<sup>1</sup>, A.C. Popa<sup>1,2</sup>, V.M.F. Marques<sup>3</sup>, A.C. Galca<sup>1</sup>, M.A. Husanu<sup>1</sup>, M. Enculescu<sup>1</sup>, C. Tanase<sup>4</sup>, D.U. Tulyaganov<sup>5</sup>, J.M.F. Ferreira<sup>6</sup>  
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<sup>5</sup>Turin Polytechnic University in Tashkent, Uzbekistan  
<sup>6</sup>Department of Materials and Ceramics Engineering, CICECO, University of Aveiro, Portugal
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- P120 **MAPLE prepared heterostructures with oligoazomethine: fullerene derivative mixed layer for photovoltaic applications**  
A. Stanculescu<sup>1</sup>, M. Socol<sup>1</sup>, O. Rasoga<sup>1</sup>, L. Vacareanu<sup>2</sup>, M. Grigoras<sup>2</sup>, G. Socol<sup>3</sup>, F. Stanculescu<sup>4</sup>, C. Breazu<sup>1,4</sup>, M. Girtan<sup>5</sup>  
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<sup>4</sup>University of Bucharest, Faculty of Physics, Magurele, Romania  
<sup>5</sup>University of Angers, Photonics Laboratory, University 2, Angers, France
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- P121 **Role of Substrate Morphology on the Characteristics of Noble Nanoparticles Produced by Laser-induced Deposition**  
N. Stefan<sup>1</sup>, N. E. Stankova<sup>2</sup>, F.M. Miroiu<sup>1</sup>, C. Hapenciu<sup>1</sup>, C. Ristoscu<sup>1</sup>, I.N. Mihailescu<sup>1</sup>, At. N. Tzonev<sup>3</sup>  
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P122 **Inter-diffusion studies in stacks of nano-layers of alternating W and B**

**C. Surdu-Bob<sup>1</sup>**, A.M. Vlaicu<sup>2,1</sup>, A. Anghel<sup>1</sup>, M. Badulescu<sup>1</sup>, R. Gavrilă<sup>3</sup>, B. Bită<sup>3</sup>

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P123 **In vitro evaluation of antitumoral and antibacterial activities of Curcumin loaded biodegradable copolymer**

**I. Tirca<sup>1,2</sup>**, V. Marascu<sup>1,3</sup>, S. Brajnicov<sup>1,2</sup>, V. Dinca<sup>1</sup>, D. Pelinescu<sup>4</sup>, I. Sarbu<sup>4</sup>, V. Mitran<sup>5</sup>, A. Campean<sup>5</sup>, M. Dinescu<sup>1</sup>

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P124 **Polyaniline grafted lignin coatings fabricated by MAPLE for medical applications**

**A. Visan<sup>1</sup>**, O. Fufa<sup>1</sup>, C. Matei<sup>1</sup>, M. Socol<sup>2</sup>, C. Luculescu<sup>1</sup>, R.C. Popescu<sup>3</sup>, D. Savu<sup>3</sup>, R. Cristescu<sup>1</sup>, I.N. Mihailescu<sup>1</sup>, D. Craciun<sup>1</sup>, G. Socol<sup>1</sup>

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P125 **Muramidase embedded into degradable polymers blends for antimicrobial applications**

**A. Visan<sup>1</sup>**, N. Stefan<sup>1</sup>, M. Miroiu<sup>1</sup>, C. Nita<sup>1</sup>, G. Dorcioman<sup>1</sup>, O. Rasoga<sup>2</sup>, I. Zgura<sup>2</sup>, C. Breazu<sup>2</sup>, I. Iordache<sup>1</sup>, A. Stanculescu<sup>2</sup>, R. Cristescu<sup>1</sup>, M.C. Chifiriuc<sup>3</sup>, L. Sima<sup>4</sup>, I.N. Mihailescu<sup>1</sup>, G. Socol<sup>1</sup>

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P126 **Comparison of different routes for the manufacture of intercalated dodecyl sulfate Mg,Al-layered double hydroxides composite thin films using laser techniques**

A. Vlad<sup>1</sup>, **I. Tirca<sup>1</sup>**, R. Birjega<sup>1</sup>, A. Matei<sup>1</sup>, M. Dumitru<sup>1</sup>, M. Dinescu<sup>1</sup>, V. Marascu<sup>1</sup>, R. Zavoianu<sup>2</sup>, M. C. Corobea<sup>3</sup>

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## Synthesis of nanomaterials

P127 **Vanadium dioxide: thermochromic properties of nanoparticle stacks versus dense thin film**

**M. Gaudin<sup>1</sup>**, F. Dumas-Bouchiat<sup>1</sup>, P. Carles<sup>1</sup>, E. Laborde<sup>1</sup>, V. Coudert<sup>1</sup>, C. Champeaux<sup>1</sup>

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P128 **Method of nano titanium dioxide synthesis by laser pyrolysis targeting photocatalytic applications**

**L. Gavrilă-Florescu<sup>1</sup>**, E. Popovici<sup>1</sup>, I. Morjan<sup>1</sup>, E. Dutu<sup>1</sup>, A. D. Badoi<sup>1</sup>, G. Demian<sup>2</sup>, M. Demian<sup>2</sup>, M. Iliescu<sup>3</sup>,

**E. M. Stanciu<sup>3</sup>**, L. C. Diamandescu<sup>4</sup>, V. Raditoiu<sup>5</sup>, A. Raditoiu<sup>5</sup>, L. E. Wagner<sup>5</sup>

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P129 **Magnetite nanoparticles functionalized with  $\beta$ -pinene modulate virulence, attachment and biofilm formation of opportunistic pathogens**

**A.M. Holban<sup>1,2</sup>**, E. Andronescu<sup>2</sup>, A.M. Grumezescu<sup>2</sup>, L.M. Ditu<sup>1</sup>, C. Curutiu<sup>1</sup>, V. Lazar<sup>1</sup>, **V. Grumezescu<sup>2,3</sup>**, B. Vasile<sup>2</sup>, C.M. Chifiriuc<sup>1</sup>

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P130 **Synthesis of Ti-based nano-particles for photocatalytic reaction by laser ablation in water**

**S. Kurumi<sup>1</sup>**, S. Kigawa<sup>1</sup>, K. -i. Matsuda<sup>1</sup>, K. Suzuki<sup>1</sup>

<sup>1</sup>Department of Electrical Engineering, College of Science and Technology, Nihon University, Tokyo, Japan

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- P131 **Surface Diffusion in PLD/VLS Growing**  
A. Marcu<sup>1</sup>, B. Calin<sup>1</sup>, C.P. Lungu<sup>1</sup>  
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- 
- P132 **Synthesis and Characterization of Hydrophobic Fe<sub>3</sub>O<sub>4</sub> Nanoparticles Functionalized with Triphenylphosphine**  
T. Malaeru<sup>1</sup>, G. Georgescu<sup>1</sup>, E. A. Patroi<sup>1</sup>, M. Eugen<sup>1</sup>, C. Morari<sup>1</sup>  
<sup>1</sup>*National Institute for Research and Development in Electrical Engineering INC DIE ICPE-CA*
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- P133 **MAPLE deposition of Fe<sub>3</sub>O<sub>4</sub> nanoparticles functionalized with *Nigella sativa* for antimicrobial applications**  
I. Negut<sup>1,2</sup>, V. Grumezescu<sup>2,3</sup>, A.M. Holban<sup>4</sup>, F. Iordache<sup>5</sup>, R. Trusca<sup>6</sup>, M. Petrus<sup>2</sup>, G. Socol<sup>2</sup>  
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<sup>6</sup>*S.C Metav-CD S.A., Bucharest, Romania*
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- P134 **Structural and morphological characterization of MAPLE deposited thin films from TiO<sub>2</sub>-SnO<sub>2</sub> NPs obtained by different methods**  
A. M. Niculescu<sup>1,2</sup>, C. T. Fleaca<sup>1</sup>, M. Scarisoreanu<sup>1</sup>, M. Dumitru<sup>1</sup>, C. Luculescu<sup>1</sup>, M. Dinescu<sup>1</sup>, I. Morjan<sup>1</sup>  
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<sup>2</sup>*University of Craiova, Faculty of Mathematics and Natural Sciences, Craiova, Romania*
- 
- P135 **Investigation of colloidal zinc oxide nanoparticles produced by laser ablation of zinc target in water**  
R.G. Nikov<sup>1</sup>, N.N. Nedyalkov<sup>1</sup>, P.A. Atanasov<sup>1</sup>, D.B. Karashanova<sup>2</sup>, J.W. Gerlach<sup>3</sup>, B. Rauschenbach<sup>3</sup>, I.N. Mihailescu<sup>4</sup>  
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<sup>2</sup>*Institute of Optical Materials and Technologies, Bulgarian Academy of Sciences, Sofia, Bulgaria*  
<sup>3</sup>*Leibniz Institute of Surface Modification (IOM), Leipzig, Germany*  
<sup>4</sup>*National Institute for Lasers, Plasma and Radiation Physics, Magurele, Ilfov, Romania*
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- P136 **Mesoporous carbon obtained by light assisted Evaporation induced self-assembly (LA-EISA)**  
M. Sopronyi<sup>1,2</sup>, F. Sima<sup>1</sup>, L. Vidal<sup>3</sup>, C.M. Ghimbeu<sup>3</sup>  
<sup>1</sup>*National Institute for Lasers, Plasma and Radiation Physics, Magurele, Romania*  
<sup>2</sup>*University of Bucharest, Faculty of Physics, Magurele, Romania*  
<sup>3</sup>*Institut de Science des Matériaux de Mulhouse, CNRS UMR 7361, UHA, Mulhouse, France*
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- Photo/laser-induced nanoscale processing**
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- P137 **A study on micro hydroforming using shock wave of 355nm UV-pulsed laser**  
G.J. Je<sup>1</sup>, H.S. Kim<sup>1</sup>, B.S. Shin<sup>2</sup>  
<sup>1</sup>*Department of Cogno-mechatronics Engineering, Pusan National University, Busan, Korea*  
<sup>2</sup>*CRC of 3D Laser-aided Innovative Manufacturing Technology, Pusan National University, Busan, Korea*
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- P138 **UV-LED induced plasmonic and excitonic nanocomposites**  
A.A. Smirnov<sup>1</sup>, A. Afanasiev<sup>1</sup>, N. Ermolaev<sup>1</sup>, S. Gusev<sup>2</sup>, N. Bityurin<sup>1</sup>  
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<sup>2</sup>*Institute for Physics of Microstructures of Russian Academy of Sciences, Nizhny Novgorod, Russia*
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- Cutting, drilling, surface patterning and micromachining**
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- P139 **Laser scribing of perovskite thin-film solar cells**  
L. Bayer<sup>1</sup>, M. Ehrhardt<sup>1</sup>, P. Lorenz<sup>1</sup>, S. Pisoni<sup>2</sup>, S. Buecheler<sup>2</sup>, K. Zimmer<sup>1</sup>  
<sup>1</sup>*Leibniz-Institut für Oberflächenmodifizierung e. V. Leipzig, Germany*  
<sup>2</sup>*EMPA, Dübendorf, Switzerland*
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- P140 **Personalized Hip Implants Manufacturing and Testing**  
S.M. Croitoru<sup>1</sup>, A. Pacioga<sup>1</sup>, S. Comşa<sup>2</sup>  
<sup>1</sup>*POLITEHNICA University of Bucharest, Faculty of Engineering and Management of Technological Systems, Machines and Manufacturing Systems Dept., Romania*  
<sup>2</sup>*National Institute of Research and Development in Mechatronics and Measurement Technique, Bucharest, Romania*
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- P141 **R&D on Dental Implants Breakage**  
**S.M. Croitoru<sup>1</sup>, I.A. Popovici<sup>2</sup>**  
<sup>1</sup>*POLITEHNICA University of Bucharest, Faculty of Engineering and Management of Technological Systems, Machines and Manufacturing Systems Dept., Bucharest, Romania*  
<sup>2</sup>*University of Medicine and Pharmacy "Carol Davila", Faculty of Dentistry, Bucharest, Romania*
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- P142 **High-aspect ratio channels by self-guiding and filamentation of high-power CW CO<sub>2</sub> laser beam in solids**  
**M. Ganciu, C. Luculescu, C. Diplasu, C. Ticos**  
*National Institute for Laser, Plasma and Radiation Physics, Magurele, Romania*
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- P143 **High-speed processing of CIGS thin film solar cells**  
**P. Gečys<sup>1</sup>, E. Markauskas<sup>1</sup>, S. Nishiwaki<sup>2</sup>, S. Buecheler<sup>2</sup>, R. De Loor<sup>3</sup>, G. Račiukaitis<sup>1</sup>**  
<sup>1</sup>*Center for Physical Sciences and Technology, Vilnius, Lithuania*  
<sup>2</sup>*Laboratory for Thin Films and Photovoltaics, Swiss Federal Laboratories for Materials Science and Technology EMPA, Duebendorf, Switzerland*  
<sup>3</sup>*Next Scan Technology, Evergem, Belgium*
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- P144 **Laser-induced Coloring of Titanium Alloy Using Nanosecond Pulses Scanning Technology**  
**Y. C. Lin, C.-C. Yang, Y. H. Lin, K. C. Huang, W. T. Hsiao**  
*Instrument Technology Research Center, National Applied Research Laboratories, Hsinchu, Taiwan*
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- P145 **Experimental analysis and comparison on laser ablations of a cobalt cemented tungsten carbide using various pulse lasers**  
**Kwang H. Oh<sup>1</sup>, D. S. Kim<sup>1</sup>, S. J. Bong<sup>1</sup>, H. S. Hong<sup>1</sup>, J. Y. Oh<sup>1</sup>**  
<sup>1</sup>*Laser Advanced System Industrialization Center, Jeonnam Technopark, Jangseong-gun, Jeollanam-do, South Korea*
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- P146 **Three-Dimensional Numerical Simulation of Laser Processing of CFRP**  
**T. Ohkubo<sup>1</sup>, M. Tsukamoto<sup>2</sup>, Y. Sato<sup>2</sup>**  
<sup>1</sup>*Tokyo University of Technology, Katakura-chou, Tokyo, Japan*  
<sup>2</sup>*Smart Beam Processing Research Center, Joining and Welding Research Institute, Osaka University, Osaka, Japan*
- 
- P147 **Thermal effect on CFRP ablation with 150W class pulse fiber laser using PCF amplifier**  
**Y. Sato<sup>1</sup>, M. Tsukamoto<sup>1</sup>, F. Matsuoka<sup>2</sup>, T. Ohkubo<sup>3</sup>, N. Abe<sup>1</sup>**  
<sup>1</sup>*Joining and Welding Research Institute, Osaka University, Japan*  
<sup>2</sup>*Graduate School of Engineering, Osaka University, Japan*  
<sup>3</sup>*Tokyo University of Technology, JAPAN*
- 
- P148 **High resolution 2D code marking on PCB using a fiber laser based equipment**  
**M. N. Selagea<sup>1</sup>, B. Lungu<sup>2</sup>, D. Besnea<sup>1</sup>, D. Comeaga<sup>1</sup>, C. I. Ilie<sup>3</sup>, O. Dontu<sup>1</sup>, M. Udrea<sup>4</sup>**  
<sup>1</sup>*University Politehnica of Bucharest, Faculty of Mechanical Engineering and Mechatronics - Precision Mechanics and Nanotechnologies / Apel Laser SRL, Romania*  
<sup>2</sup>*University Politehnica of Bucharest, Faculty of Engineering and Management of Technological Systems - Materials Technology and Welding / Apel Laser SRL, Romania*  
<sup>3</sup>*National Institute for Research and Development in Electrical Engineering ICPE-CA, Romania*  
<sup>4</sup>*Apel Laser SRL, Romania*
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- P149 **Optimization of Laser Induced Color Marking on Metals**  
**M. N. Selagea<sup>1</sup>, B. Lungu<sup>2</sup>, D. Besnea<sup>1</sup>, D. Comeaga<sup>1</sup>, C. I. Ilie<sup>3</sup>, O. Dontu<sup>1</sup>, M. Udrea<sup>4</sup>**  
<sup>1</sup>*University Politehnica of Bucharest, Faculty of Mechanical Engineering and Mechatronics - Precision Mechanics and Nanotechnologies / Apel Laser SRL*  
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<sup>3</sup>*National Institute for Research and Development in Electrical Engineering ICPE-CA*  
<sup>4</sup>*Apel Laser SRL*
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- P150 **Functionalization of medical grade PDMS processed by ns-laser pulses**  
**N.E. Stankova<sup>1</sup>, P.A. Atanasov<sup>1</sup>, Ru.G. Nikov<sup>1</sup>, R.G. Nikov<sup>1</sup>, N.N. Nedyalkov<sup>1</sup>, K.N. Kolev<sup>2</sup>, Dr.M. Tatchev<sup>2</sup>, E.I. Valova<sup>2</sup>, J.S. Georgieva<sup>2</sup>, St.A. Armyanov<sup>2</sup>, N. Fukata<sup>3</sup>, K. Grochowska<sup>4</sup>, G. Śliwiński<sup>4</sup>**  
<sup>1</sup>*Institute of Electronics, Bulgarian Academy of Sciences, Sofia, Bulgaria,*  
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<sup>3</sup>*International Center for Materials for NanoArchitectonics (MANA), National Institute for Materials Science (NIMS), Japan,*  
<sup>4</sup>*Photophysics Department, The Szwalski Institute, Polish Academy of Sciences, Gdańsk, Poland*
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- P151 **Fabrication of Periodic ZnO Microdot Arrays by Laser Interference Patterning**  
**S. Takao, M. Yamasaki, R. Tasaki, K. Oda, M. Higashihata, D. Nakamura, T. Okada**  
*Graduate School of Information Science and Electrical Engineering, Kyushu University, Japan*
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P152 **Morphological and structural study of the laser-induced diamond to graphite transformation**

**M. De Feudis<sup>1,2</sup>, A.P. Caricato<sup>1,2</sup>, E. Broitman<sup>3</sup>, A. Taurino<sup>4</sup>, P. M. Ossi<sup>5</sup>, C. Castiglioni<sup>6</sup>, L. Brambilla<sup>6</sup>, G. Chiodini<sup>2</sup>, M. Martino<sup>1,2</sup>**

<sup>1</sup>*Department of Mathematics and Physics, University of Salento, Lecce, Italy*

<sup>2</sup>*INFN National Institute of Nuclear Physics, Lecce, Italy*

<sup>3</sup>*IFM, Linköping University, Linköping, Sweden*

<sup>4</sup>*CNR-IMM, Institute for Microelectronics and Microsystem, Lecce, Italy*

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<sup>6</sup>*Dipartimento di Chimica, Materiali, Ingegneria Chimica, Politecnico di Milano, Milan, Italy*

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P153 **Mapping the optical near field of metallic nanoparticles: applications for high-efficiency photovoltaics**

**S. H. Møller<sup>1</sup>, P. L. Tønning<sup>1</sup>, P. Balling<sup>1</sup>**

<sup>1</sup>*Department of Physics and Astronomy, Aarhus University, Aarhus C, Denmark*

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P154 **Investigation of the efficiency of Pt/Rd, Pt/Ru and Pt/Co multilayer catalysts in Polymer Electrode Membrane fuel cells**

**W. Mróz<sup>1</sup>, B. Budner<sup>a\*</sup>, S. Grigoriev<sup>2</sup>, V. Fateev<sup>3</sup>, M. L. Korwin-Pawłowski<sup>4</sup>, Y. Suda<sup>5</sup>, Z. Szymański<sup>6</sup>**

<sup>1</sup>*Institute of Optoelectronics, Military University of Technology, Warsaw, Poland*

<sup>2</sup>*National Research University "Moscow Power Engineering Institute", Russia*

<sup>3</sup>*National Research Centre "Kurchatov Institute", Russia*

<sup>4</sup>*Université du Québec en Outaouais, Département d'informatique et d'ingénierie, Gatineau, Canada*

<sup>5</sup>*Department of Electrical and Electronic Information Engineering, Toyohashi University of Technology, Japan*

<sup>6</sup>*Laser Technology Application, Institute of Fundamental Technological Research, Warsaw, Poland*

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P155 **Laser Induced Selective Phase Transition of Molybdenum Disulphide Nanoplatelet Arrays**

**R. Trusovas<sup>1</sup>, G. Račiukaitis<sup>1</sup>, G. Niaura<sup>2</sup>, A. Jagminas<sup>3</sup>**

<sup>1</sup>*Department of Laser Technologies, Center for Physical Sciences and Technology, Lithuania*

<sup>2</sup>*Department of Organic Chemistry, Center for Physical Sciences and Technology, Lithuania*

<sup>3</sup>*Department of Electrochemical Materials Science, Center for Physical Sciences and Technology, Lithuania*

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# ICPEPA10

## ICPEPA10

1

Cerbul Carpatin, Gala Dinner on Thursday September 1st, 2016

2

Black Church, Visit and organ concert on Tuesday August 30, 2016

3

Conference Venue, "Sergiu T. Chiriacescu" Aula of the "Transilvania" University, 41A Iuliu Maniu Street, Brasov

