



European Materials Research Society

2023 Spring Meeting May 29 | June 2

40th Anniversary

Congress & Exhibition Centre, Strasbourg, France

SYMPOSIUM L

Making light matter: lasers in material sciences and photonics

Symposium Organizers:

Jörn BONSE, BAM, Berlin, Germany

Irina Alexandra PAUN, INFLPR, Bucharest, Romania

Johannes HEITZ, Johannes Kepler University Linz, Austria

Razvan STOIAN, University of Saint Etienne, France



Monday May 29

L01

Industrial Laser Machining

Chairperson(s) : BONSE Jörn

Etoile A (1st floor)

08:45	575	INV	Optical data writing in glass for the archival cloud storage	SAKAKURA Masaaki
09:15	2580		Advanced focal beam shaping in rotational and quadratic symmetry for improved laser material interaction	FUCHS Ulrike
09:30	193		Multifunctional laser-induced nanostructures for highly demanding photonic applications	ANTONIS Papadopoulos
09:45	1673		Laser processing and analysis of hybrid lead halide perovskite solar modules	JEONG Yujin

Monday May 29

L02

Laser Additive Manufacturing - I

Chairperson(s) : PAUN Irina Alexandra

Etoile A (1st floor)

10:30	1063	INV	3D nano-printing with light	FARSARI Maria
11:00	2031		Laser sintering: A universal additive manufacturing method for sensing devices, automotive solutions and space applications	PERVOLARAKI Maria
11:15	839		Sub Diffractive STED-Inspired Cationic Lithography	ISLAM Sourav
11:30	384		Assessment of a massively parallel non-linear polymerisation process using scalar light propagation simulation tools	OGOR Florie
11:45	1356		Compositionally gradient 3D multimaterial structures through laser metal deposition	TOBAR Maria Jose

Monday May 29

L03

Biological Laser Surface Engineering

Chairperson(s) : HEITZ Johannes

Etoile A (1st floor)

13:30	1483	INV	Addressing icing with laser-assisted biomimicry and envisioning a waste-free surface functionalization process	KIETZIG Anne-Marie
14:00	2679		Laser Technologies to Generate Active and Passive Solutions for Anti-icing Surfaces	DE LA FUENTE German Francisco
14:15	2756	INV	Laser Direct Write Bioprinting Enriched Cell Types in the Breast Tumor Microenvironment	CHRISEY Douglas B.
14:45	2615		Production of bioactive glass nanofibers by laser spinning for wound healing applications	FERNÁNDEZ-ARIAS Mónica

Monday May 29

L04

Laser Additive Manufacturing - II

Chairperson(s) : FARSARI Maria

Etoile A (1st floor)

15:00	1988		Heat accumulation study for low diameter own produced stainless steel powder particle fusion using femtosecond pulse laser	RAMON-CONDE Iñigo
15:15	280		Effect of Laser Parameters on the Microstructural, Electrochemical and High-Temperature Oxidation Properties of the CoNiCrAlY Cladding on Inconel through Direct Metal Laser Deposition	KARMAKAR Ranit
15:30	1419		Expanding the toolbox for STED-inspired lithography	GVINDZHILIA Georgii
15:45	2751		Pulsed laser deposited BN/VO2/BN architected films with thermochromic properties at low transition temperature	BOURQUARD Florent

Monday May 29

L05

Laser-induced Periodic Surface Structures - I

Chairperson(s) : GRÄF Stephan

Etoile A (1st floor)

16:30	1798	Formation of laser-induced periodic surface structures observed with extreme temporal and spatial resolution	BONSE Jörn
16:45	447	Nano-scale dots, grids, ripples and heterostructures on PET by UV laser processing	HEITZ Johannes
17:00	1748	Laser induced surface nanostructures in ferroelectric polymers	REBOLLAR Esther
17:15	1381	Modification of Kapton wettability by laser nanostructuring	MARTÍNEZ-GARCÍA Patricia
17:45	868	Tailoring surface topographies on solids with Mid-IR femtosecond laser pulses	MARAGKAKI Stella
18:00	79	Comparison of laser inscribed micropillars on flat versus tilted substrates	ABOUD Damon
18:15	1577	LIPSS for secondary electron yield reduction: influence of spherical and cylindrical lenses	JJ NIVAS Jijil

Tuesday May 30

L06

Laser-induced Periodic Surface Structures - II

Chairperson(s) : BONSE Jörn

Etoile A (1st floor)

10:00	1999	Competition between the laser-induced chemical reactions and periodic surface structures (LIPSS)	GUREVICH Evgeny
10:15	617	Formation of laser-induced periodic surface structures on Zr-based bulk metallic glasses with different chemical composition	GRÄF Stephan
10:30	405	Role of Machining and Exposure Conditions on the Surface Chemistry Modification of Ultrafast Laser-Machined Copper Surfaces.	JOY Nithin
10:45	1883	The role of surface roughness on the regularity of LIPSS generated in metals with femtosecond lasers	GALLEGO Diego
11:00	1931	Effect of initial surface roughness on LIPSS formation and its impact on cell and bacteria attachment on metallic surfaces for bone implant applications	SARAU George
11:15	404	Impact of plasmonic modes and metal thermophysical properties on the formation of self-organised nano-patterns in thin films	STRATAKIS Emmanuel
11:30	1715	LIPSS formation on complex oxide thin films: the case of Yttrium Stabilized Zirconia	KARIM Wael
11:45	1330	Influence of femtosecond laser repetition rate on the formation of Laser Induced Periodic Surface Structures on thin films of Poly (ethylene terephthalate)- expanded graphite nanocomposite.	PRADA-RODRIGO Javier

Tuesday May 30

L07

Ultra-short and Ultra-high Power Laser Interaction with Matter - I

Chairperson(s) : DERRIEN Thibault

Etoile A (1st floor)

13:30	2059	INV	Subcycle dynamics of plasma formation in fs laser irradiated solid dielectrics	MERMILLOD-BLONDIN Alexandre
14:00	1324		Time resolved mid-infrared absorption in silica: a new approach to study the electron-phonon coupling in glassy dielectric materials	DE MICHELE Vincenzo
14:15	1234		Analysis of ultrashort laser-induced plasma anisotropy in Zinc Telluride, by using terahertz probe pulses	ZHANG Daiwei
14:30	2721		Characterizing Solid State Sensors for Particle Detection at High Spatial and Temporal Resolution Using Wavelength-Tunable Two-Photon Photocurrent	AL AMAIRI Nawal
14:45	624		Ultrafast laser 3D processing of semiconductor materials using burst-mode irradiation strategies	SOPENA Poi

Tuesday May 30

L08

Laser Beam Engineering for Surface Processing

Etoile A (1st floor)

15:00	522	INV	Periodic structures created by laser interference irradiation	SIMON Peter
15:30	1091		Well-defined periodic pattern fabrication on biomaterial surfaces using direct laser interference patterning	VOISIAT Bogdan
15:45	2584		Dual lasers self-alignment system for materials processing	LAN Yu-Pin

Tuesday May 30

L09

Laser Surface Processing - I

Chairperson(s) : SIMON Peter

Etoile A (1st floor)

16:30	966	INV	Wavelength dependencies in ultrashort laser processing of dielectrics and semiconductors	GARCIA-LECHUGA Mario
17:00	2442		Wide band gap materials texturing using femtosecond laser	KARUPPIAH Deva Arun Kumar
17:15	2519		Femtosecond laser processing of niobium oxide layers with improved electro-optical properties for environmental applications	SOTILLO Belen
17:30	1104		Generation of high aspect ratio micro-pillars by ultrafast first-order Bessel beam	BELLONI Valeria Viviana
17:45	1151		X-Ray hazard upon ultrashort laser pulse processing of biological materials	KRAFT Sebastian
18:00	2468		Femtosecond Laser Induced Oxidation Mechanism on Tungsten Surfaces	GARRELIE Florence
18:15	899		Light-induced Reshaping of Complex 3D Mesostuctures on Azopolymer surfaces	JANUARIYASA I Komang

Wednesday May 31

L10

Laser Surface Texturing Applications

Chairperson(s) : STOIAN Razvan

Etoile A (1st floor)

10:00	1954	Laser texturing of metallic surfaces for water harvesting applications	POU-ÁLVAREZ Pablo
10:15	2605	Study of CO2 laser-induced soda-lime glass fracture mechanisms for decorative purposes	CAPELLE Alex
10:30	163	Corrosion, Tribocorrosion and Bioactivity of Ultrafast Laser Structured Titanium alloy (Ti6Al4V)	MADAPANA Dileep
10:45	1434	Femtosecond laser micromachining of metal surfaces to change the overall adhesion of resins on metal	RATHNAYAKA Shashini
11:00	1744	Ultrafast laser paint removal of GFRP composites used in shipbuilding	LÓPEZ Ana J.
11:15	2230	Ultrashort laser-treated PVD ZrCu-based thin film metallic glasses, or how to switch the biological behaviour of surfaces from biocide to biocompatible?	BRUHIER Hugo
11:30	915	Durability of stainless steel surfaces against chemical and mechanical stress modified by laser and chemical techniques	ZIMMER Klaus
11:45	2632	Ultra-fast Laser texturing : A New Approach for Deterministic Graphene Folds	JUAREZ SABORIO Ana Florencia

Wednesday May 31

JOINT LQ 01

PLD of Thin Films I (JOINT SESSION L & Q)

Symposia

Chairperson(s) : HARO-PONIATOWSKI Emmanuel

Etoile A (1st floor)

	2344	High quality MnZn soft ferrite films grown by pulsed laser deposition for applications in high frequency planar transformers and inductors	PETRESCU Lucian-Gabriel
13:30	2743	INV A brief historical overview of PLD for complex oxides	BLANK Dave H. A.

14:00	1182	Low-Dimensional Eu ²⁺ Based Emitters on Si by means of Nano- and Femtosecond Laser Processing	MARISCAL-JIMÉNEZ Antonio
14:15	904	PLD-based pyramidal-shaped ceria biointerfaces	BONCIU Anca

Wednesday May 31

JOINT LQ 02

PLD of Thin Films I (JOINT SESSION L & Q)

Symposia

Chairperson(s) : BLANK Dave H. A.

Etoile A (1st floor)

15:00	2448	Morphology control of self-organized Sr ₃ (VO ₄) ₂ and Ca ₃ (VO ₄) ₂ nanostructures on SrVO ₃ and CaVO ₃ perovskite PLD films	DEMANGE Valérie
15:15	2672	Perovskites-based thin films for photoelectrochemical water-splitting applications	ANDREI Florin
15:30	2644	Fabrication of nanostructured glasses by laser ablation	HARO-PONIATOWSKI Emmanuel
15:45	178	A Hybrid p-n Junction Based on metal chalcogenides for Highly Efficient Self-Powered Photodetection	KUMAWAT Kishan Lal

Wednesday May 31

L_P

Poster session

Chairperson(s) : KIETZIG Anne-Marie - PERVOLARAKI Maria - REBOLLAR Esther

Etoile (1st floor) - 4.30 p.m to 6.30 p.m

01_63	Laser-Printed Emissive Metasurface as an Optical Security Platform	KANG Dongkyun
02_145	Laser induced graphene synthesis from photoresist	KWON Soongeun
03_2260	kinetic and comparative study of the isomerization reaction of substituted tetradecahepta-ene by ab-initio and dft method	LEKBIR Choukri
04_2274	study of the isomeric ratio of oriented polyacetylene isomerization reaction by laser beam	DJEBAILI Abdelbaki

05_1271	Numerical and kinetic study of isomerization reaction of oriented polyacetylene induced by laser impact, shown by multichannel Raman	DJEBAILI Abdelbaki
06_1216	Controllable wettability behavior of stainless steel surfaces developed by femtosecond laser texturing for application in high traffic objects	DASKALOVA Albena
07_2687	Bimetallic copper oxide/Pd nanoparticles obtained by laser ablation in water for antibacterial applications.	VILAS Ana María
08_1705	Chitosan-metal nanocomposite with enhanced antibacterial and photocatalytic activity obtained by laser ablation in liquid	DE BONIS Angela
09_2062	Experimental investigation and numerical modeling of melt pool dynamics during direct laser interference patterning	VOISIAT Bogdan
10_2219	Organic heterostructures with nanopatterned electrode and nanoparticle buffer layer prepared by laser technique	BREAZU Carmen
11_2241	Structural and electrochemical properties of epitaxial titanium carbide thin films grown by laser processing on MgO (111) and Al ₂ O ₃ (001) substrates	CONSTANTINESCU Catalin-Daniel
12_2226	Laser-induced forward transfer (LIFT) of metals for multiscale printing of 3D micro-objects and surface structuring	CONSTANTINESCU Catalin-Daniel
13_801	High resolution patterning of doping in semiconducting polymer films by non-resonant laser excitation	RAINER Christian
14_1791	High yield C-SiC composite nanoparticles synthesized by laser pyrolysis and their application for thermal transfer as aqueous nanofluids	FLEACA Claudiu
15_2720	Experimental study of short and ultrashort pulse laser processing modes of solar silicon cells	TSANKOV Docho
16_1068	Ambient pressure influence on the conductivity of tracks fabricated by picosecond laser pulses on the surface of AlN ceramic	DIKOVSKA Anna
17_2271	Carbide Dispersed Surface on Beta Titanium Alloy (Ti-13Nb-13Zr) by Laser surface Alloying	BERA Tapas
18_2275	Corrosion and Tribocorrosion Behavior of Laser Surface Melted Titanium Based Alloy (Ti6Al4V)	DAS Bipasha

19_2280	Studies on Mechanical, Electrochemical and Mechanochemical Behaviour of AISI 316L Stainless Steel for Bioimplant Application	IMANNA@METAL.IITKGP.ERNET.I Indranil
20_921	Secondary electron yield engineering of copper using ultra-short laser pulse irradiation	ZIMMER Klaus
21_929	Fabrication of micro cubes with plasmonic functionalization by laser precision machining of modified polymers foils	ZIMMER Klaus
22_1875	Production of iron oxide nanoparticles through laser pyrolysis using isopropanol as sensitizer	LUNGU Iulia Ioana
23_1138	Effect of picosecond laser illumination direction on P3 scribing of CuInGaSe2 thin-film solar cell architecture based on transparent back electrode	JEONG Jeung-Hyun
24_1494	Chemical and topographical changes upon sub-100-nm laser-induced periodic surface structure formation on titanium alloy	BONSE Jörn
25_1620	Picosecond laser processing of hierarchical micro-nanostructures on titanium alloy upon pre- and post-anodization	BONSE Jörn
26_1183	Impact of laser-induced periodic surface structures on the bactericidal properties of copper and brass	MEISSNER Sven
27_2315	Femtosecond laser intraoral robotic: the future of modern dentistry	BRAND Julia
28_2328	Microwave Induction heating for Non-contact and Ultra-fast Annealing of Conductive Thin Film	KIM Daeho
29_508	Tuning the optical and structural properties Sn-Sb-S (TAS) thin films by 248 nm excimer laser irradiation	KHEMIRI Naoufel
30_1180	High-rate laser texturing for advanced coating substrate preparation	KRAFT Sebastian
31_1783	Bacterial adhesion on fs-laser processed laser-induced periodic surface structures	RAZKIN Malen
32_2542	Study of laser textured polymer to control wettability and emissivity	FLURY Manuel
33_1995	Polymer thin films with hole transport properties for organic solar cell applications	STÎNGESCU Maria-Luiza
34_2476	Microstructure of the EVA thin films deposited by MAPLE process from three - component target	MITU Bogdana

35_2626	Magnesium Nanoparticles obtained by Laser Ablation in Ethanol	FERNÁNDEZ-ARIAS Mónica
36_1406	Laser assisted synthesis and optical properties of hybrid silicon nanoparticles for solar-thermal applications	TARASENKO Nikolai
37_1986	Laser ablation fabrication of anisotropic metal oxides nanoparticles for the novel electrochemical sensors	TARASENKA Natalie
38_672	Surface structuring and ablation characteristics of nitride ceramics induced by picosecond laser pulses	NEDYALKOV Nikolay
39_2164	Charge transfer induced robust spin polarization in hBN/TMDC/PbI ₂ heterostructures in type I and type II configurations	BARMAN Prahalad Kanti
40_2158	Robust photoluminescence enhancement of in-band-engineered TMDC/PbI ₂ heterostructure by non-radiative energy transfer process	BARMAN Prahalad Kanti
41_2658	Fabrication of TiO _x /copper oxide nanostructures by laser ablation as photocatalyst for hydrogen production	POU-ÁLVAREZ Pablo
42_579	Core-selective silver-doping of gold nanoclusters by surface-bound sulphates on colloidal templates: From synthetic mechanism to relaxation dynamics	CHANDRA Sourov
43_1690	Exploring subthreshold control over HfO ₂ mirrors upon fs laser irradiation via target current measurements. Towards Understanding Damage Threshold Limit	IRIMICIUC Stefan
44_2467	Effects of fs pulsed laser ablation on synthetic zeolite targets	ORLANDO Stefano
45_1214	Laser micromarking of dental implants for improved traceability	CRACIUN Valentin
46_1777	Production of copper-based nanostructures via pulsed laser ablation in different solvents and their properties for water splitting in alkaline electrolyte	IACONO Valentina
47_262	Lasing in Atoms Green: a New Phenylene-Based Conjugated Polymer	KUMAR Vishal

Thursday June 1

L11

Laser-induced Plasma and Applications

Chairperson(s) : DE LA FUENTE German Francisco

Etoile A (1st floor)

10:00	1960	Laser ablation combined with electric sparks for element analysis of steels and polymers by optical emission spectroscopy	PEDARNIG Johannes
10:15	492	Laser-induced reactive micro plasma as an advanced tool for high quality surface engineering	ZIMMER Klaus
10:30	937	Combining atmospheric pressure plasma jet processing with pulsed laser ablation for ultra-precise processing of technical glasses	HEINKE Robert
10:45	1679	Rethinking ionic oscillations in ns-laser produced plasmas	IRIMICIUC Stefan
11:00	1429	Laser-Induced Thermal Desorption for Probing Adsorption on Carbon Surfaces: A Combined Experimental and Theoretical Study	AL ASEEL Joelle
11:15	2712	Application of laser technologies to control the crystallinity of Cu ₂ O and ZnO layer deposited by SALD	FRECHILLA Alejandro
11:30	616	Laser-Induced Graphene as electrode material in Proton-Exchange Membrane Fuel Cells	SERRA Tommaso
11:45	692	Laser-synthesis of Tin Sulfides	AVERCHENKO Aleksandr

Thursday June 1

L12

Ultra-short and Ultra-high Power Laser Interaction with Matter - II

Chairperson(s) : MERMILLOD-BLONDIN Alexandre

Etoile A (1st floor)

13:30	67	INV	Holographic optical engine (HoIOE) for laser processing with beam shaping	HAYASAKI Yoshio
14:00	284		Ionisation dynamics, damage conditions and surface patterning in fused silica irradiated with Mid-Infrared femtosecond pulses	MARAGKAKI Stella

14:15	1193	Laser-induced symmetry breaking in energy absorption of silicon induced by intense femtosecond laser pulse	DERRIEN Thibault
14:30	2297	Correlating High-Harmonic Generation and Ionization Dynamics in Bulk Solids	JUERGENS Peter
14:45	313	Few-cycle laser-written surface waveguides for evanescent field sensing	RAMMELT Laura

Thursday June 1

L13

Laser-induced Melting and Crystallization

Chairperson(s) : GARCIA-LECHUGA Mario

Etoile A (1st floor)

15:00	2252	Laser Heating, Melting and Quenching of Thin Films	RESL Josef
15:15	1149	Pulsed laser crystallization of sputtered MoS ₂ layers	TONON Alessandro
15:30	2213	Synthesis of relaxed Ge _{0.9} Sn _{0.1} /Ge by nanosecond pulsed laser melting	DI RUSSO Enrico
15:45	1186	Pulsed Laser Melting for Sb heavy doping of Ge _{1-x} Sn _x epilayers	FONTANA Daris

Thursday June 1

L14

Lasers and Applications

Chairperson(s) : PEDARNIG Johannes

Etoile A (1st floor)

16:30	1497	New technologies for High Purity Germanium segmented detectors: from virgin crystals to innovative devices.	BERTOLDO Stefano
16:45	308	Polariton condensation from a bound state in the continuum	RIMINUCCI Fabrizio
17:15	540	Naturally Occurring Halloysite Nanotubes as Stable Passive Light Scatterers for Random Lasing	PRAMANIIC Ashim
17:30	2648	From optical pumping to electrical pumping: the threshold overestimation in metal halide perovskites	QIN Jiajun

17:45	2656	Transport layer engineering towards lower threshold for perovskite lasers	ZHANG Jia
18:00	1840	Laser processes for HPGe gamma ray detectors	CARRARO Chiara
18:15	1871	Fast and low temperature detection of Nitric Oxide (NO) based on CuO nanoparticles obtained by pulsed laser ablation in liquid	IACONO Valentina

Friday June 2

L15

Laser-Induced Forward Transfer

Chairperson(s) : SOPENA Pol

Etoile A (1st floor)

08:45	366	INV	The Power of Light: Creation of Polymer-based Nanocomposites with Bactericidal Effect	SIEGEL Jakob
09:15	1474		LIFT printing of conductive patterns on reconfigurable substrates	FERNANDEZ PRADAS Juan Marcos
09:30	1710		Shape control for laser-printed microlenses through substrate reconfiguration	MARTÍ Ernest
09:45	2091		Laser-Induced Forward Transfer for the creation of relevant bio-models	DUVERT Lucas

Friday June 2

L16

Laser Surface Processing

Chairperson(s) : BONSE Jörn

Etoile A (1st floor)

10:30	860		Laser-induced periodic surface structures in polymers with tailored laser fields	DE NALDA Rebeca
10:45	1243		Laser induced periodic surface structuring of Germanium with circularly polarized femtosecond pulses	JJ NIVAS Jijil
11:00	1689		Spatially Regulated Pressure of Shockwave for the Generation of 2D Micro Patterns	LEE Jaejun
11:15	2287		Effect of Si Addition on the Microstructure and High Temperature Oxidation Resistance Property of Titanium Aluminide	DUTTA MAJUMDAR Jyotsna

