

COLA 2024

29 September - 4 October 2024

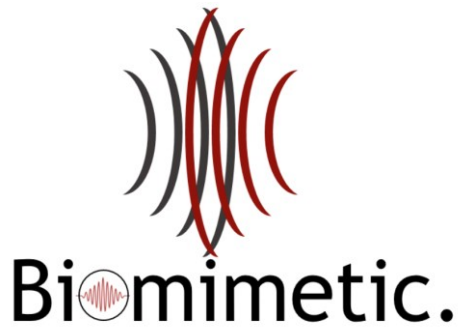


PROGRAM

17th International Conference on Laser Ablation



Hersonissos, Crete, Greece



COLA 2024

The 17th International Conference on Laser Ablation

CONFERENCE CHAIRS

Maria FARSARI, Foundation for Research and Technology, Hellas

Mangirdas MALINAUSKAS, Vilnius University, Lithuania

Masoud MAHJOURI-SAMANI, Auburn University, USA

Godai MIYAJI, TUAT, Japan

Organized by:



September 29 – October 4
Creta Maris Resort, Hersonissos
Crete, Greece

<https://cola2024.eventsadmin.com/>

Venue Layout

The Creta Maris Beach Resort



COMMITTEES

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- M. Meunier:** Polytechnique Montreal, Canada
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- H. Niino:** AIST, Japan
- A. Rode:** ANU, Australia
- J. Schou:** Technical University of Denmark, Denmark
- R. Stoian:** University St Etienne, France
- M. Stuke:** Max Planck Institute Biophysics Chemistry, Germany
- K. Sugioka:** RIKEN, Japan
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- L. Zhigilei:** University of Virginia, USA

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COLA 2024

ORAL PRESENTATION
PROGRAM

Sunday, September 29th
WELCOME SESSION

WELCOME SESSION

17:00-20:00

REGISTRATION

19:00-20:30

CONFERENCE OPENING & WELCOME RECEPTION

Monday, September 30th
ORAL SESSION

OPENING SESSION

08:30-09:00	REGISTRATION	
09:00-09:10	INTRODUCTION Maria Farsari Foundation for Research and Technology, Hellas	
09:10-10:00	PLENARY LECTURE Carlo Liberale KAUST, Kingdom of Saudi Arabia	Novel micro-3D printed photonic devices via two-photon lithography
10:00-10:30	Amy S. Mullin (Invited) University of Maryland, United States	Photoablation with time-evolving polarization states
10:30-11:00	Coffee Break	
	Session 1 – Maria Farsari - Godai Miyaji	
11:00-11:30	Stephan Barcikowski (Invited) University of Duisburg-Essen, Germany	Pulsed laser crushing of microparticles into nanoparticles in liquid flow– insights, upscaling, and application
11:30-11:50	Ikurou Umezu Konan University, Japan	A method to prepare size-controlled spherical nano/micro particles by pulsed laser ablation using inertial effects.
11:50-12:10	Mindaugas Gedvilas Lithuanian Academy of Sciences, Lithuania	Bi-stability control in extremely efficient laser ablation by MHz burst of femtosecond pulses: experiment, modeling, and applications
12:10-12:30	Maximilian Spellauge Munich University of Applied Sciences HM, Germany	Unveiling the significance of spallation layer redeposition during ultrashort pulse ablation in liquid
12:30-12:50	Junya Hattori University of Tokyo, Japan	Time-resolved measurement of stress field formed by femtosecond laser-induced stress waves in vitreous silica
12:50-14:30	Lunch Break	
	Session 2 – Amy Mullin - Stephan Barcikowski	

14:30-14:50	Esther Rebollar Instituto de Química Física Blas Cabrera, CSIC, Spain	Characterization of TiO ₂ and ZnO nanoparticles and films generated by pulsed laser ablation: Application in photocatalysis of microplastics
14:50-15:10	Evangelos Skoulas Biomimetic Company, Greece	Advancing silica laser damage: Broadband enhancement via ultrafast laser nanostructuring
15:10-15:30	Keisuke Takenaka Joining and Welding Research Institute, Osaka University, Japan	Mechanism of uniform LIPSS formation by two-color double femtosecond laser pulse irradiation on biomaterials
15:30-15:50	Kernius Vilkevičius Center for Physical Sciences and Technology, Lithuania	Ultrashort laser pulse induction of diverse morphology nanostructures on thin films
15:50-16:10	Franziska Chalupa-Gantner TU Wien, Austria	Polymerization threshold at high scanning speeds for microstructures using 2-Photon Polymerization in 1, 2 and 3-dimensional conditions
16:10-16:40	Coffee break	
	Session 3 – Mary Konstantaki - Dimitra Ladika	
16:40-17:10	Alexandra Palla-Papavlu (invited) INFLPR, Romania	Laser-processing of stimuli-responsive materials for the development of functional devices
17:10-17:30	Fabian Christ TU Darmstadt, Germany	Two photon polymerization for inertial fusion energy target fabrication
17:30-19:30	POSTER SESSION 1	

Tuesday, October 1st
ORAL SESSION

Session 4 – Carlo Liberale - Gordon Zyla		
08:30-09:00	Marti Duocastella (Invited) Universitat de Barcelona, Spain	Ultrasound-enabled light focusing for advanced materials processing
09:00-09:20	Hugo Bruhier Jean Monnet University, France	Multiscale characterization of the wettability of fs-laser textured thin film metallic glasses surfaces
09:20-09:40	Masabumi Miyabe Japan Atomic Energy Agency, Japan	High resolution ablation fluorescence spectroscopy for remote isotopic analysis
09:40-10:00	Robin Uren University of Dundee, Scotland	A Universal process for reducing secondary electron yield
10:00-10:20	Carlos Molpeceres Polytechnic University of Madrid, Spain	Laser isolation of circulating tumoral cells in liquid biopsy
10:20-10:50	Coffee Break	
Session 5 – Michel Meunier - Heinz P. Huber		
10:50-11:20	Stefan Nolte (Invited) Friedrich-Schiller University, Jena	Ultrafast laser processing of narrow bandgap semiconductors
11:20-11:40	Katharine Tibbetts Virginia Commonwealth University, USA	Chemical reactions induced by ultrashort pulsed laser ablation in organic liquids
11:40-12:00	Stefano Orlando CNR-ISM, Italy	Thermal waves induced by ultrashort laser pulses in wide bandgap semiconductors
12:00-12:20	Kavil Mehta Pandit Deendayal Energy University, India	Dynamics of laser ablation in liquid with confined target geometry
12:20-12:40	Philipp Rebentrost Mittweida University, Germany	Fundamental investigations of metal matrix composite ablation using burst pulses

12:40-14:20	Lunch Break	
	Session 6 – Alexandra Palla-Papavlu - Stefan Nolte	
14:20-14:40	Dominyka Stonyte Vilnius University, Lithuania	Precision manipulation of surface machining at the nanoscale utilizing the fs-UV interference method
14:40-15:00	Ying Tsui University of Alberta, Canada	Incubation effect dynamics of silicon irradiated by violet and near-infrared ultrashort laser pulses
15:00-15:30	Coffee Break	
	Session 7 – Argiro Klini - Arash Rahimi-Iman	
15:30-15:50	Heinz Huber Munich University of Applied Sciences, Germany	How can time-resolved experiments contribute to a validated model of ultrashort pulse laser ablation?
15:50-16:10	Mykolas Karpavičius Light Conversion	Machining of through-glass vias (TGVs) with femtosecond laser GHz burst modes
16:10-16:30	Alexander Horn Mittweida University, Germany	Reconstruction of the ablation of thin gold films induced by ultrafast laser radiation
16:30-16:50	Johannes Heitz Johannes Kepler University Linz, Austria	Laser-induced periodic surface structures as substrates for Schwann cells alignment and oriented nanofiber collection
16:50-18:50	POSTER SESSION 2	

Wednesday, October 2nd
ORAL SESSION

Session 8 – Dimitra Ladika - Mangirdas Malinauskas		
08:30-09:00	Koji Sugioka (Invited) RIKEN, Japan	Femtosecond Laser 3D printing of CYTOP for high resolution live cell imaging
09:00-09:20	Ernest Marti Jerez Universitat de Barcelona, Spain	Adding 3D shape control in LIFT with print-n-release
09:20-09:40	Christos Boutopoulos University of Montreal, Canada	In-situ laser-assisted bioprinting of corneal pro-regeneration biomaterials
09:40-10:00	Daniela Serien National Institute of Advanced Industrial Science and Technology (AIST), Japan	Free-Form fabrication of proteinaceous wireframe 3D structures by femtosecond laser direct write
10:00-10:20	Marina Makrygianni National Technical University of Athens, Physics Department, Hellas	LIFT of metallic interconnections and solder materials for the digital bonding in photonic applications
10:20-10:50	Coffee Break	
Session 9 – Koji Sugioka - Costas Grigoropoulos		
10:50-11:40	PLENARY LECTURE Hidetoshi KATORI University of Tokyo, Japan	Make optical lattice clocks compact and useful for real-world applications
11:40-12:00	John Fourkas University of Maryland, USA	Laser ablation of 2D materials: Mechanistic characterization and applications in nanophotonics
12:00-12:20	Nazar Farid University of Galway, Ireland	Large area flexible conductive scaffolds by direct laser writing
12:20-12:40	Irene Solana Optics Institute "Daza de Valdés", CSIC, Spain	Femtosecond laser interference patterning for highly accurate material structuring
12:40-14:30	Lunch Break	
14:30-23:00	Excursion & Conference Dinner	

Thursday, October 3rd

ORAL SESSION

Session 10 – Gordon Zyla - Alexander Bulgakov		
8:30-8:50	Alex Capelle GREMI-CNRS, France	Thermo-mechanical model of CO2 laser-induced damages on decorative glass
8:50-9:10	Leonid V. Zhigilei University of Virginia, USA	Atomistic modeling of generation of defect-rich nanoparticles by short pulse laser ablation and processing in liquid
9:10-9:30	Arash Rahimi-Iman Justus-Liebig- Universitaet Giessen, Germany	Machine-Learning-Based Optimization of Chiral Photonic Metasurface: Evolution- and Neural-Network-Based Designs for Printing or Ablating
9:30-9:50	Jean-Philippe Colombier Université Jean Monnet, CNRS,France	Deciphering the complexity behind laser-induced self-organized nanopatterns
9:50-10:10	Inka Manek- Hönninger Université de Bordeaux- CNRS-CEA, France	Advances in micromachining for through via drilling with femtosecond laser operating in burst-mode
10:10-10:30	Gonzalo Gómez Muñoz Laser Processing Group (LPG), IO-CSIC, C, Spain	Electrical and optical anisotropies induced by fs-LIPSS generation in FTO commercial films
10:30-11:00	Coffee Break	
Session 11 – Marti Duocastella - Nadezhda Bulgakova		
11:00-11:50	PLENARY LECTURE Vasilis Ntziachristos Institute for Biological and Medical Imaging, Germany	Listening to Light: Optoacoustic Imaging and Applications
11:50-12:10	Ivan Chapalo Munich University of Applied Sciences HM, Germany	Bragg gratings inscription in polypropylene light pipes using different laser sources

12:10-12:30	Shota Ui Tokyo University of Technology, Japan	Investigation of an AI to suggest scanning paths for uniform temperature distribution in the selective laser thermoregulation method
12:30-12:50	George D. Tsibidis Foundation for Research and Technology (FORTH), Greece	Controlling the damage threshold of Si with SiO ₂ coatings upon irradiation with Mid-IR femtosecond laser pulses
12:50-14:30	Lunch Break	
	Session 12 – Masoud Mahjouri-Samani - Leonid Zhigilei	
14:30-15:00	Wilhelm Pflieger (Invited) Karlsruher Institut für Technologie, Germany	Laser ablation of electrodes for next generation batteries
15:00-15:20	Ayesha Sharif University of Galway, Ireland	Phase tuned, highly conductive graphene by ultra-short laser irradiation of PEEK
15:20-15:40	Michel Meunier Polytechnique Montréal, Canada	Fundamentals and applications of pulsed laser gene and drug delivery from lipid nanoparticles containing gold nanoparticles
15:40-16:00	Emmanuel Haro- Poniatowski Autonomous Metropolitan University Iztapalapa Unit, Mexico	Preparation and characterization of imidacloprid nanoribbons by laser fragmentation/exfoliation in liquid media
16:00-16:30	Coffee break	
	Session 13 – Paraskevi Pouli - Wilhelm Pflieger	
16:30-16:50	Anastasios Nikolaos Raikidis FORTH, Greece	AI-driven acoustic monitoring of laser cleaning interventions
16:50-17:10	Kaname Imokawa Komatsu, Japan	Demonstration of low contact resistance in SiC using high repetition rate KrF excimer laser irradiation
17:10-17:30	Yudai Mizuno Fukuoka Institute of Technology, Japan	Photoluminescence imaging of YAG:Ce particles generated by laser ablation in liquid PDMS
17:30-17:50	Stefan A. Irimiciuc Institute of Physics CAS, Czech Republic	Defect tailoring in CuI film produced by pulsed laser deposition based on plasma diagnostic techniques
17:50-19:50	POSTER SESSION 3	

Friday, October 4th
ORAL SESSION

Session 14 – Savvas Papamakarios - Inka Manek - Hönninger		
08:30-08:50	Saulius Juodkazis Swinburne University of Technology, Australia	Large area mask writing with fs-laser pulses
08:50–09:10	Francisco Gontad AIMEN, Spain	Parallel 3D microfabrication using a SLM display
09:10-09:30	Artur Andrishak International Iberian Nanotechnology Laboratory, Portugal	Suspended 3D printed polymer waveguides for on-chip photonic interconnects
09:30-09:50	Makoto Nakajima Osaka University, Japan	Terahertz free electron laser induced periodic surface structures on Ge ₂ Sb ₂ Te ₅
09:50-10:10	Davide Orecchia Politecnico di Milano, Italy	Femtosecond pulsed laser deposition as a universal tool for nanofoam synthesis
10:10-10:30	Xitong Xie University of Ottawa, Canada	Laser machining of free-standing silicon nitride membranes
10:30-11:00	Coffee Break	
Session 15 – Saulius Juodkazis - Michalis Stavrou		
11:00-11:20	Yusaku Kawarazaki Tokyo University of Technology, Japan	Development of feedback system for uniform temperature distribution in the selective laser thermoregulation system
11:20-11:40	Sathiesh Kumar V MIT Campus, Anna University, India	Slit-LIBS: A novel strategy to improve the efficiency of soil nutrient measurement from a stand-off distance
11:40-12:00	Stephan Gräf Friedrich Schiller University Jena, Germany	Unveiling the formation process of laser-induced periodic surface structures on stainless steel using ion implantation
12:00-14:00	Awards & Closing	

COLA 2024
POSTER
PRESENTATION
PROGRAM

POSTER SESSION 1

Monday, September 30, 2024

Evangelos Skoulas - Eudokia Kyriakou

1	Godai Miyaji <i>Tokyo University of Technology, Japan</i>	Surface nanostructuring by short-range propagating surface plasmon excited with few-cycle femtosecond laser pulses
2	Panagiotis Loukakos <i>IESL-FORTH, Greece</i>	Laser-nanostructured electrodes for enhanced Hydrogen Evolution Reaction
3	Luisa D'Urso <i>University of Catania, Italy</i>	MoS2 structures modified by laser irradiation for semiconductor-SERS sensing
4	Eulàlia Puig Vilardell <i>Vilnius University, Lithuania</i>	3D Photonic Crystal for Rainbow Trapping Fabricated via Two-Photon Lithography
5	Maria Anna Chliara <i>NTUA, Greece</i>	Laser bioprinting of 3D structures in organ on chip devices
6	Michalis Stavrou <i>IESL – FORTH, Greece</i>	Indane-1,3-dione-based push-pull dyes as low fluorescent and highly efficient photoinitiators for free radical polymerization
7	Jean-Philippe Colombier <i>CNRS, France</i>	Oxidation of metals during topographic functionalization upon ultrafast laser irradiation
8	Ioannis Liontos <i>IESL – FORTH, Greece</i>	THz beam profile shaping through linear and nonlinear superposition of two-color laser filaments
9	David Redka <i>Munich University of Applied Sciences, Germany</i>	Local Versus Global: Rethinking Incubation in Ultra-Short Pulse Laser Ablation
10	Yasutaka Hanada <i>Hirosaki University, Japan</i>	LIPSS formation on transparent material by laser-induced plasma-assisted ablation (LIPAA) and its fundamental characteristics
11	Yuhai Li <i>Research Center of Laser Fusion, China</i>	Study on the degradation of high reflection film performance induced by stray light irradiation of CFRP in high-power continuous laser facilities
12	Rida Ahmed <i>University of Ljubljana, Slovenia</i>	Influence of MHz bursts on the ablation efficiency of thin metal foils
13	Yu-Hsuan Lin <i>Taiwan Instrument Research Institute, National Applied Research Laboratories</i>	Investigating the impact of ultraviolet laser parameters on the surface characteristics of silicon carbide (SiC) substrates
14	Denys Miakota <i>Technical University of Denmark, Denmark</i>	Femtosecond UV laser enhancement of silver nanowires based transparent conductive electrodes

15	Takuma Hamachi <i>Kyushu University, Japan</i>	Formation of ultra-low dielectric constant film by non-thermal laser deposition
16	Stefan Irimiciuc <i>Czech Academy of Sciences, Czechia</i>	Insight into pulsed laser deposition of selected oxynitride system. Oxidation control via plasma diagnostic tools
17	Leon Geiger <i>Karlsruhe Institute of Technology, Germany</i>	Laser-induced crystallization: enhanced predictability of urea crystallization by optimized laser repetition rate
18	Krzysztof Dzierzega <i>Jagiellonian University, Poland</i>	Exploring nonlinear optical effects in NV-doped diamond
19	Ciro D'Amico <i>Jean Monnet University, Saint-Etienne, France</i>	Ultrafast laser induced anisotropic carrier transport dynamics in smooth and surface pre-structured crystal semiconductors, detected by terahertz pulses
20	Sang-Ho Nam <i>Mokpo National University, Republic of Korea</i>	Classification of soybean paste using laser-induced breakdown spectroscopy and k-nearest neighbors analysis
21	Yu-Hsuan Lin <i>Taiwan Instrument Research Institute, National Applied Research Laboratories</i>	Ultraviolet laser-assisted micropattern fabrication and its impact on viral activity inhibition under electrical stimulation
22	Denys Miakota <i>Technical University of Denmark, Denmark</i>	The use of femtosecond UV laser for selective layer processing of CIGS thin-film solar cells
23	Carla Raquel Fontana <i>São Paulo State University, Brazil</i>	Treatment of gingival melanin pigmentation by CO ₂ and Nd: YAG laser ablation
24	Vincenzo De Michele <i>Université Jean Monnet, France</i>	Time resolved mid-infrared absorption in silica: ultrafast heat transfer observed by direct probing of anharmonic vibrations
25	Tatsunori Shibuya <i>National Institute of Advanced Industrial Science and Technology, Japan</i>	Selective laser assisted chemical etching of aluminum nitride
26	Christoph Rehbock <i>University of Duisburg-Essen, Germany</i>	The size and composition-dependent mechanisms of High-entropy-alloy nanoparticle formation by laser ablation in liquids
27	Cleber Mendonca <i>IFSC/USP, Brazil</i>	Femtosecond direct laser writing for fabricating structures with NV centers
28	Masayuki Kakehata <i>National Institute of Advanced Industrial Science and Technology (AIST), Japan</i>	Laser-induced periodic surface structures on titanium alloy and zirconia ceramics formed by irradiation of femtosecond two-color double-pulse sequences
29	Grigorios Boulogiannis <i>Fraunhofer Institute for Solar Energy Systems (ISE), Germany</i>	Characterization of the nonlinear optical properties of glass using the Z-scan technique for advancing laser-glass processing in photovoltaics
30	Hidehiko Yashiro <i>National Institute of Advanced Industrial Science and Technology (AIST), Japan</i>	Adhesion strength of hydroxyapatite layer on zirconia substrates coated by droplets eliminated type pulsed-laser deposition
31	Alex Capelle <i>GREMI - CNRS - Université d'Orléans, France</i>	LIPSS formation on soda-lime glass by femtosecond laser beam: effect of repetition rate with two different wavelengths (1030nm and 515 nm)

32	Stavroula Elezoglou <i>National Technical University of Athens, Greece</i>	Laser induced forward transfer of cells towards engineered grafts
33	Alexander Bulgakov <i>HiLASE Centre, Institute of Physics CAS, Czech Republic</i>	Incongruent and delayed evaporation of multicomponent materials: Manifestations in laser-ablation plumes
34	Reza Nekouie Esfahani <i>Manufacturing Technology Centre, UK</i>	Three-dimensional (3D) laser-induced surface metallisation for the fabrication of 3D printed electronics
35	David Girard <i>University of Ottawa, Canada</i>	Silver (I) oxide and silver (I, III) oxide formation via femtosecond laser micromachining
36	Masoud Mahjouri-Samani <i>Auburn University, USA</i>	Inkless printing multimaterial electronics – A laser-based additive nanomanufacturing approach
37	Inam Mirza <i>HiLASE Centre, Institute of Physics of the Czech Academy of Sciences, Czechia</i>	Non-thermal regimes of laser annealing of semiconductor nanostructures
38	Philipp Maack <i>Ruhr-University Bochum, Germany</i>	Underwater femtosecond laser micromachining of porous transport layers for electrolysis applications
39	Shu Hayashi <i>Princeton University, USA</i>	Laser direct writing of carbon complexes from polymeric precursors by laser-induced graphitization
40	Shu Hayashi <i>Princeton University, USA</i>	Three-dimensional carbon fiber networks with multiple self-orienting laser-induced periodic surface structures enabled by ultrafast laser processing
41	Jan Marx <i>Applied Laser Technologies, Ruhr University Bochum, Germany</i>	Reflectance investigation on ultrashort pulsed laser generated surface microstructures
42	Maria Pervolaraki <i>IESL – FORTH, Greece</i>	Laser sintering: igniting innovation across sensing, automotive and space
43	Mangirdas Malinauskas <i>Laser Research Center, Faculty of Physics, Vilnius University, Lithuania</i>	Synthesis and study of YAG: Ln for multiphoton 3D lithography
44	Hidehiko Yashiro <i>National Institute for Advanced Industrial Science and Technology (AIST), Japan</i>	Transmission electron microscope measurement of the hydroxyapatite layers coated by droplets eliminated type pulsed-laser deposition
45	Shigeki Matsuo <i>Shibaura Institute of Technology, Japan</i>	Possibility of fabricating tetragonal periodic surface structures using circularly-polarized laser pulses
46	Simon Jelinek <i>FZU - Institute of Physics, Czech Academy of Sciences, Czechia</i>	Ablation damage characterizes non-Gaussian beam profiles – extension of Liu’s method
47	Tien-Li Chang <i>Department of Mechatronic Engineering, National Taiwan Normal University, Taiwan</i>	Ultrafast Laser Induced Bio-Inspired Metallic Structures for Biological Response
48	Tatsuki Nakayama <i>Graduate School of Science and Technology, Nihon University, Japan</i>	Development of visible light responsive TiO ₂ photocatalyst with highly oriented gold nanoislands fabricated by PLD

49	Keitaro Shimada <i>The University of Tokyo, Japan</i>	Portable STAMP with thin-plate-based spectral broadening for picosecond single-shot imaging in laser ablation systems
50	Esther Rebollar <i>Instituto de Química Física Blas Cabrera, CSIC, Spain</i>	Modification of polymers wettability by laser irradiation with nanosecond and femtosecond pulses
51	Nicolas Thomae <i>Munich University of Applied Sciences HM, Germany</i>	Impact of Topography and Thermophysical Properties on Multi-Shot LIPSS Generation
52	Linda Pabst <i>Laserinstitut Hochschule Mittweida, Germany</i>	High rate laser polishing using a polygon scanner
53	Wojciech Talik <i>Jagiellonian University in Cracow, Poland</i>	Upconversion luminescence in Er-doped tellurite-phosphate glass during crystallization with femtosecond laser pulses
54	Béla Hopp <i>University of Szeged, Hungary</i>	Laser ablation as a tool for fragmentation of active pharmaceutical ingredient particles
55	Tamás Smausz Kolumbán <i>University of Szeged, Hungary</i>	Production of composite nanoparticles by ablating along the contact line of silver and gold plates placed in V geometry

POSTER SESSION 2

Tuesday, October 1, 2024

George Tsididis - Maria Pervolaraki

1	Michalis Stavrou <i>IESL – FORTH, Greece</i>	Remarkable Nonlinear Optical Response of non van der Waals 2D Hematene and Magnetene Nanoplatelets Exfoliated from Mineral Ores Using a Green Synthesis Method for Ultrafast Photonic Applications
2	Carlos Esteban Cifuentes Quintal <i>Aix Marseille Univ, CNRS, France</i>	Exploring laser ultra-fast ablation techniques on UO ₂ : Advancements in Nuclear Fuel Micro-Machining
3	Laura Loi <i>ALPhANOV, France</i>	Laser-based surface functionalization of transparent materials by Direct Laser Interference Patterning technique
4	Béla Hopp <i>University of Szeged, Hungary</i>	Surface darkening of different metals using nanosecond pulsed laser ablation
5	Motoaki Nakatsutsumi <i>European XFEL, Germany</i>	Grazing-incidence XFEL scattering to study ultrafast surface ablation and nano-structuring dynamics
6	Hanan Mir <i>Fraunhofer Institute for Solar Energy Systems, Germany</i>	High-Speed Ultrashort Pulse Laser Dicing of 4H-SiC via Polygon Scanner
7	Nadezhda Bulgakova <i>HiLASE Centre, Institute of Physics CAS, Czech Republic</i>	Volumetric modification of fused silica with double laser pulses: the effect of pulse separation on energy deposition
8	Yoshihiro Iwata <i>Japan Atomic Energy Agency, Japan</i>	Gadolinium ion emission in a water Cherenkov detector
9	Florin Andrei <i>National Institute for Laser, Plasma and Radiation Physics, Romania</i>	Strain engineering of epitaxial perovskite-based heterostructures for efficient photoelectrochemical water splitting
10	Joerg Schille <i>Laserinstitut Hochschule Mittweida, Germany</i>	High-efficient ultrashort pulse laser ablation in the long burst GHz pulse regime
11	Eugenia Bosler <i>Technische Universität Berlin, Germany</i>	Influence of Material and Process Interactions in Two-Photon Polymerization: Application-Oriented Methods for Resolution Analysis
12	Matthias Domke <i>Vorarlberg University of Applied Sciences, Austria</i>	One-shot imaging of laser-induced surface acoustic waves on silicon and metal films using pump-probe microscopy
13	Gonzalo Gómez Muñoz <i>Laser Processing Group IO-CSIC, Spain</i>	Controlled Formation of Spike-Like Structures in Silicon by fs-Laser Processing for Enhanced Light Absorption

14	Francisco Gontad <i>AIMEN Laser Technology Centre O Porriño, Spain</i>	Parallel laser texturing with Diffractive Optical Elements for friction reduction in pistons
15	Antonios S. Valavanis <i>University of Virginia, USA</i>	Dynamics of Laser-Induced Phase Explosion in Ag Films: Insights from Atomistic Simulations and Optical Imaging
16	Anna Münzer <i>Fraunhofer Institute for Solar Energy Systems ISE, Germany</i>	Annealing of TCO Thin Films on Temperature-Sensitive Solar Cells with Short and Ultrashort UV Laser Pulses
17	Peter Gregorcic <i>University of Ljubljana, Faculty of Mechanical Engineering, Slovenia</i>	Ablation of metal surfaces by low-fluence laser pulses in different gas atmospheres
18	Shih-Feng Tseng <i>National Taipei University of Technology, Taiwan</i>	Characteristic investigation of laser thermal oxidation treatment for maskless marking QR codes on SS316 and Ti-64 surfaces
19	Yonghoon Lee <i>Mokpo National University, Republic of Korea</i>	Classification of Kimchi using Laser-Induced Breakdown Spectroscopy and k-Nearest Neighbors Modeling
20	Nils Schott <i>Institute of Nuclear Physics, Germany</i>	Laser micromachining for proton fast ignition laser fusion target fabrication
21	Laimis Zubauskas <i>Center for Physical Science and Technology (FTMC), Lithuania</i>	Top-down ablation of fused silica by BiBurst femtosecond laser
22	Miglė Mackevičiūtė <i>Center for Physical Sciences and Technology, Lithuania</i>	Soda-lime glass machining with GHz bursts using a bottom-up technique
23	Keita Katayama <i>Kyushu University, Japan</i>	Localized and shallow laser doping by excimer laser annealing
24	Johannes Roth <i>University Stuttgart, Germany</i>	Novel excitation-induced non-thermal effects and ablation mechanisms in silicon from atomistic simulations with a thermal spike model
25	Yury Ryabchikov <i>HiLASE Centre, Institute of Physics of the Czech Academy of Sciences, Czechia</i>	Laser Synthesis and Heating of Semiconductor-Based Nanocomposites with Tuned Plasmonic Properties
26	Kuder Aiyyzhy <i>Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia</i>	Laser assisted synthesis of boron nanoparticles
27	Stephane Guizard <i>Laboratoire Interactions Dynamiques et Lasers, CEA, Université Paris-Saclay, France.</i>	Femtosecond and subfemtosecond carrier dynamics in wide-band gap dielectrics
28	Lasse Bienkowski <i>Fraunhofer Institute for Solar Energy Systems ISE, Germany</i>	Utilizing Transient Effects for Ablating Glass Using Combined Picosecond and Nanosecond Laser Pulses
29	Shuntaro Tani <i>The Institute for Solid State Physics, Japan</i>	Mid-infrared light emission during laser ablation

30	Hiroshi Yoshikawa <i>Osaka University, Japan</i>	High-Speed Polarization Imaging of Laser Ablation-Induced Crystallization of Ice in Supercooled Water
31	Ecem Demir <i>Ruhr University Bochum, Germany</i>	Process Simulation and Development for Laser Beam Welding with Rotating Bifocal Optics
32	Emmanuel Haro-Poniatowski <i>Departamento de Física, Universidad Autónoma Metropolitana Iztapalapa, Mexico</i>	Au Nanostructured glasses fabricated simultaneously by PLD and Sol-Gel techniques.
33	Thibault Derrien <i>Institute of Physics of the Czech Academy of sciences, Czechia</i>	Linear absorption of single-layer graphene deposited on quartz: density-functional tight binding vs optical measurements
34	Ankit Das <i>Princeton University, USA</i>	Mitigating undulations via external electric fields in laser powder bed fusion
35	Stefano Orlando <i>CNR-ISM, Italy</i>	Surface electrical conductivity variations induced by ultrashort laser pulses in wide bandgap semiconductors
36	Markéta Janková <i>University of West Bohemia, Czechia</i>	Room-temperature reactive interactions between transition metal monoxides and silicon monoxide sols generated by laser ablation in liquid leading to the formation of silicides and silicates
37	Tomáš Křenek <i>University of West Bohemia, Czechia</i>	Newly discovered potentials of laser ablation in liquids for energy-saving formation of solar light-driven photocatalytic materials
38	MiHye Kim <i>LG Electronics Production engineering Research Institute, South Korea</i>	Study of Selective Laser-induced Etching for Micro-hole Formation in Glass using a Bessel Beam
39	Mehdi Abedi-Varaki <i>FTMC - Center for Physical Sciences and Technology, Lithuania</i>	Density effect on the electron acceleration by Bessel-Gauss laser beam from a laser wakefield accelerator
40	Tobias Held <i>Department of Physics and Research Center OPTIMAS, RPTU Kaiserslautern-Landau, Germany</i>	Band-resolved relaxation of laser-excited gold
41	Jean-francois GLEYZE <i>CEA-CESTA, Bordeaux, France</i>	CO2 laser ablation process for laser induced-damage mitigation of fused silica optics for LMJ
42	Nastaran Hayatiroodbari <i>Joanneum Research Forschungsgesellschaft mbH, Austria</i>	Pulsed laser ablation processes in photovoltaics
43	Paulius Gečys <i>Center for Physical Sciences and Technology (FTMC), Lithuania</i>	Polarization controlled crack propagation in Bessel beam processing of soda-lime glass
44	Oliver Dubnack <i>Friedrich-Schiller-Universität Jena, Germany</i>	Mechano-responsive wetting of fs-laser-structured PDMS surfaces
45	Falko Jahn <i>Laserinstitut Hochschule Mittweida, Germany</i>	Investigations on various approaches in order to reduce droplet incorporation into films produced by Pulsed Laser Deposition

46	Jijil JJ Nivas <i>University of Naples Federico II, Italy</i>	Influence of ambient pressure on LIPSS formation in silicon
47	Modestas Sadauskas <i>FTMC – Center for Physical Sciences and Technology, Lithuania</i>	Metal micro mesh electrode formation on transparent dielectric surface using Selective Surface Activation Induced by Laser technology
48	Sena Maru <i>Waseda University, Japan</i>	Dynamics observation of pressure waves during femtosecond laser irradiation in amorphous silica glass
49	Andrius Žemaitis <i>Center for Physical Sciences and Technology (FTMC), Lithuania</i>	Femtosecond bursts advancing ablation efficiency and quality of metals
50	Antonio Brancato <i>University of Study of Catania, Italy</i>	Study of magnetic nanoparticles obtained by Laser ablation of Mount Etna volcanic rocks
51	Misa Beppu <i>Kyushu University, Japan</i>	Sn doping into β -Ga ₂ O ₃ by a KrF excimer laser
52	Mao Sudo <i>Osaka University, Japan</i>	The effect of plume removal on welding efficiency and behavior in welding copper using 1.5kW blue diode laser
53	Antonio Santagata <i>CNR-ISM, Italy</i>	A comparative survey of nanostructured surfaces generated by wet chemistry and LIPSS for NELIBS detection of trace metals in liquids

POSTER SESSION 3

Thursday, October 3, 2024

Stefan-Andrei Irimiciuc - Emmanuel Haro-Poniatowski

1	Meenu M S <i>Cochin University of Science and Technology, India</i>	Femtosecond Laser Written Polymer Micro-Scaffolds for Tissue Engineering
2	Kevin Lubig <i>Friedrich Schiller University Jena, Germany</i>	Investigation of contact friction on material surfaces nanostructured with fs-lasers
3	Bogusz Stepak <i>Fluence, Poland</i>	Enhancing metal processing efficiency with femtosecond fiber laser: drilling, deep engraving, cutting, and polishing
4	Lucrezia Catanzaro <i>University of Catania, Italy</i>	Tuning the Aggregation of Metal Nanoparticles prepared by Laser Ablation with Halide Salt solutions
5	Markus Uehlein <i>Department of Physics and Research Center OPTIMAS, RPTU Kaiserslautern-Landau, Germany</i>	Tracing non-thermal electrons in laser-excited metals with an extended two-temperature model
6	Yu-Hsuan Lin <i>National Applied Research Laboratories, Taiwan</i>	Enhancement of hydrophobicity and biocompatibility in embedded pressure sensor through laser surface modification
7	Sharath Rameshbabu <i>Swiss Federal Laboratories for Materials Science and Technology (Empa), Switzerland</i>	Pulsed laser deposition of Ho ₂ O ₃ thin films for Nano-Photonics
8	Simon Kümmel <i>Institute for Functional Matter and Quantum Technologies, Germany</i>	Investigation of excitation-induced non-thermal effects in semiconductors, metals and alloys
9	Hendrik Wrigge <i>Institut für Nanophotonik Göttingen, Germany</i>	Broadband pump probe setup for ultrafast transient reflectivity measurements
10	Angela De Bonis <i>Dipartimento di Scienze, Università della Basilicata, Italy</i>	Tailored Nanozyme Composite Materials via Laser Ablation in Liquid: Towards Enhanced Photocatalytic and Antimicrobial Capabilities
11	Makoto Nakajima <i>Osaka University, Japan</i>	Laser processing of organic wood-plastic composite materials
12	Xuan Wang <i>Wuhan University, China</i>	Surface Enhanced Raman Scattering Studies of Femtosecond Laser Written Ripple-like Nanostructures in Air and Vacuum

13	George Perrakis <i>IESL – FORTH, Greece</i>	Hybrid electromagnetic surface modes impact on low spatial frequency LIPSS formation and periodicity reduction
14	Antonio Santagata <i>CNR-ISM, Italy</i>	LIPSS for Li-less lithium metal negative electrodes of secondary aprotic batteries
15	Panagiotis Konstantakis <i>IESL – FORTH, Greece</i>	Retrieving Optical Information in Nonlinear Chaotic Systems using Neural Networks
16	Tatsunori Shibuya <i>National Institute of Advanced Industrial Science and Technology, Japan</i>	Development of sub-microsecond delay pump-probe imaging method for hydrodynamic micro liquid deformation
17	Achu Purushothaman <i>Università degli Studi di Napoli Federico II, Italy</i>	Metallic film deposition by femtosecond laser ablation in air at atmospheric pressure
18	Lukáš Vála <i>University of West Bohemia, Czech Republic</i>	Comparative study of pulsed laser induced synthesis and precipitation of nanostructured ternary Co-Fe-S based coat and nanoparticles
19	Xiaona Zhao <i>Wuhan University, China</i>	Direct Laser Written Periodic Si Ripples Decorated with Au Nanoparticles as a Platform for Surface Enhanced Raman Spectroscopy
20	Argyro Klini <i>IESL – FORTH, Greece</i>	Role of substrate temperature and laser fluence on cesium lead bromide thin films by Pulsed Laser Deposition
21	Aram Melkonyan <i>UJM Saint-Etienne, CNRS, Institute of Optics Graduate School, France</i>	Densification of amorphous silica obtained from different polymorphs
22	Rodrigas Liudvinavičius <i>Department of Laser Technologies, Center for Physical Sciences and Technology, Lithuania</i>	Formation of periodic plasmonic structures on a thin gold layer sputtered on different surfaces
23	Yuan Chen <i>China Academy of Engineering Physics (CAEP), China</i>	Talbot effect replicative transcription on downstream optics in high-power laser diagnostics system
24	Mikuru Okazaki <i>Course of Science and Technology, Japan</i>	Antibacterial effect of periodic structure formed on stainless steel by using femtosecond pulsed laser
25	Kiran Kumar K <i>Technology Innovation Institute, United Arab Emirates</i>	Numerical Simulation of Ultrashort Pulse Laser - Material Interaction with an Angle of Incidence
26	Irene Solana <i>Universidad Autónoma de Madrid, Spain</i>	Femtosecond laser processing of gold-implanted glass: assisted absorption and optoplasmonic tuneability
27	Sandra Stroj <i>Research Center for Microtechnology, Austria</i>	Realization of miniaturized PMN-PT piezo actuators by femtosecond laser processing for compensation of fine structure splitting of entangled photon quantum emitters

28	Deividas Andriukaitis <i>Ekspla, Lithuania</i>	Efficient Dielectric Material Processing In Femtosecond GHz Burst Mode
29	Marnix Vreugdenhil <i>Utrecht University, Netherlands</i>	Wavelength dependence of single-shot laser ablation thresholds for semiconductors
30	Lebogang Kotsedi <i>iThemba LABS-NRF, South Africa</i>	Comparison of thermal and Laser heating activation energy calculation of Sn-Zn
31	Eichi Terasawa <i>Chil-Chyuan National Institute of Advanced Industrial Science and Technology, Japan</i>	Predictive Multimodal AI model for Laser Processed Material Functions and Properties
32	Iaroslav Gnilitzkyi <i>King's College London, UK</i>	Laser-Induced Self-Organized Microrod Arrays
33	Wen-Tse Hsiao <i>Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan</i>	Characterization analysis of 1064 nm and 532 nm dual pulsed laser fragmentation in liquid on copper target
34	Yu-Jen Hsiao <i>National Kaohsiung University of Science and Technology, Taiwan</i>	Gas Sensing Films Using Laser Annealing for MEMS Applications
35	Evaldas Stankevicius <i>Center for Physical Sciences and Technology, Lithuania</i>	Direct laser writing for the formation of nanophotonic structures
36	Dimitra Ladika <i>IESL – FORTH, Greece</i>	Wavelength-independent and photoinitiator-free multiphoton lithography
37	Eudokia Kyriakou <i>IESL – FORTH, Greece</i>	Bioinspired Hierarchical Materials with enhanced mechanical properties
38	Andreas Parlanis <i>IESL – FORTH, Greece</i>	Auxetic Scaffolds via Multiphoton Lithography for Neuroregeneration
39	Antonis Kordas <i>IESL – FORTH, Greece</i>	Development of in vitro biomimetic environments for the regeneration of the nervous tissue
40	Konstantina Terzaki <i>IESL – FORTH, Greece</i>	Fabrication of porous mastic gum scaffolds by UV laser for drug delivery applications
41	Savvas Papamakarios <i>IESL – FORTH, Greece</i>	Fabrication of Split Ring Resonators (SRRs) for IR energy harvesting using multiphoton lithography
42	Vasileia Melissinaki <i>IESL – FORTH, Greece</i>	Micro-optical elements fabricated by multiphoton lithography on various substrates
43	Gordon Zyla <i>IESL – FORTH, Greece</i>	Laser-based 3D printing of micro-optics with high fidelity
44	Elmina Kabouraki <i>IESL – FORTH, Greece</i>	3D micro-optical elements by multiphoton lithography and nano-imprinted patterns using high laser induced damage threshold photoresists

45	Ioannis Syngelakis <i>IESL – FORTH, Greece</i>	Laser direct writing of efficient 3D TiO ₂ nano-photocatalyst
46	Christos Boutopoulos <i>University of Montreal, Canada</i>	Computational modeling and printing optimization in fiber-based laser-assisted bioprinting
47	Myrto Charitaki <i>IESL – FORTH, Greece</i>	Bioinspired Bone-like Hydrogel Scaffolds for Bone Tissue Regeneration via Multiphoton Lithography
48	Hidehiko Yashiro <i>National Institute for Advanced Industrial Science and Technology (AIST), Japan</i>	Transmission electron microscope measurement of the hydroxyapatite layers coated by droplets eliminated type pulsed-laser deposition



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Stainless steel stent cutting



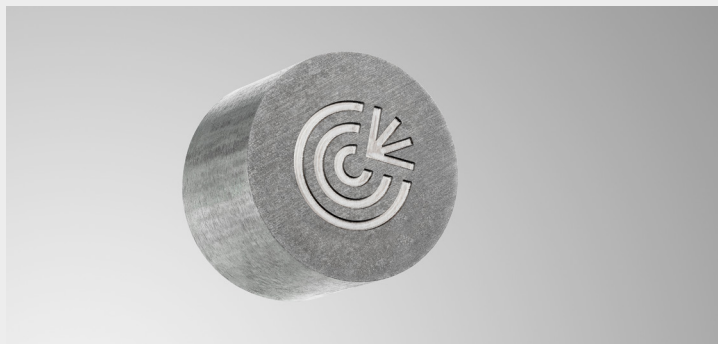
Example of a stent cut from stainless steel.

Nozzle drilling



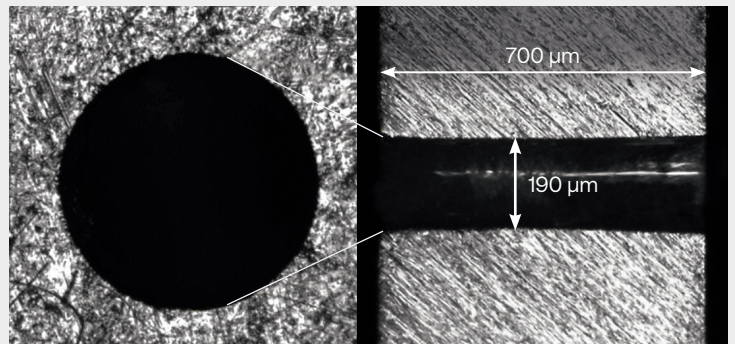
Precision drilling of the nozzle holes.

Selective ablation



Selective ablation of tungsten carbide.

Steel drilling



Taperless hole micro-drilling in stainless steel alloys.

Source: Workshop of Photonics.

3D glass etching



Structure fabricated in fused silica.

Cutting and welding

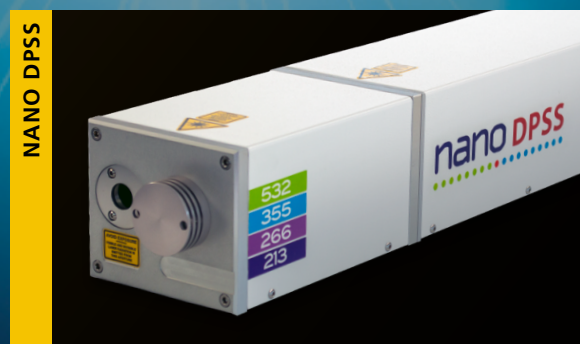
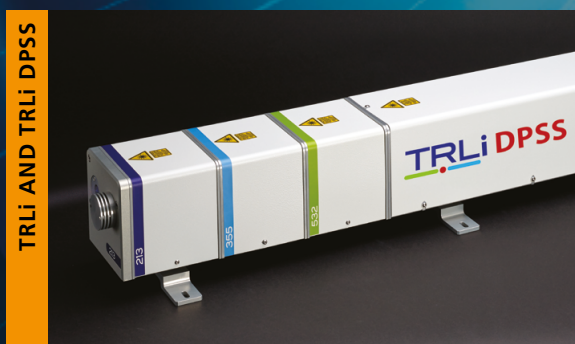
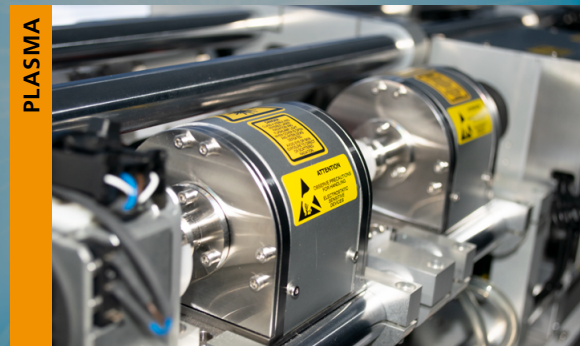
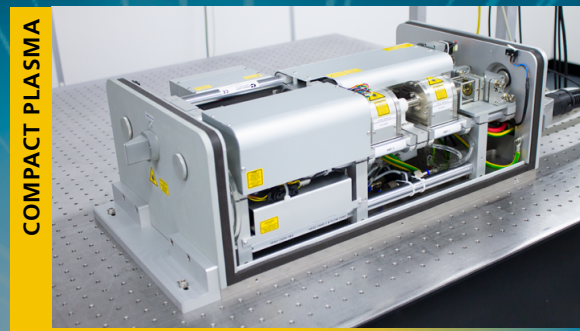


Cut and welded parts from brass using a single laser system.



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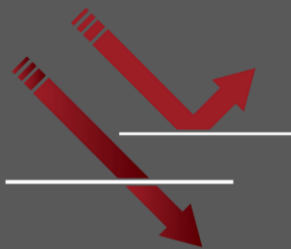


Biomimetic.

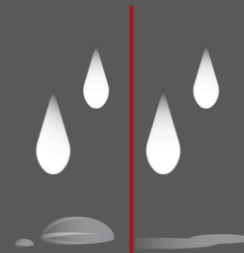
Nature's ingenuity on surface engineering

Laser surface engineering for high demanding photonic applications

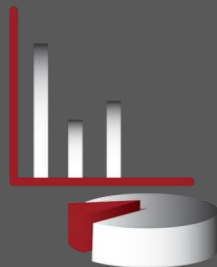
Anti-Reflective (AR) glass



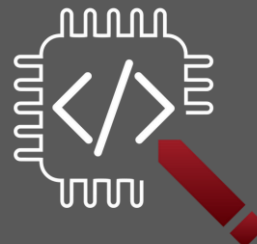
Anti-Fogging (AF) glass



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LASER OPTICS

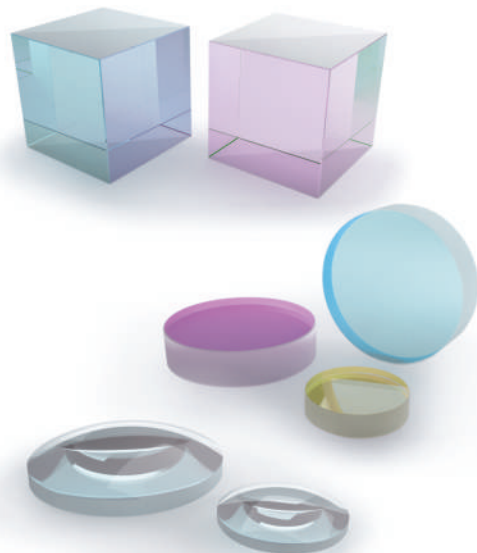
- Dielectric Thin-Film Optics
- Polarization Optics
- Lenses
- Custom Shapes And Sizes



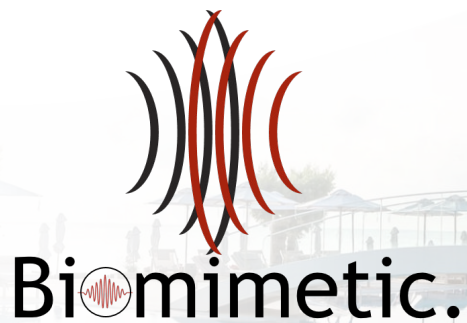
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