Program

of the conference LTLA-2023

June 29 - June 30, 2023

Truskavets, Ukraine

Time: *(CEST)*	**Date** June 29, 2023, Thursday	***Time:*** *(CEST)*	**Date** June 30, 2023, Friday
9:00÷9:15	**Ceremonial opening of the Conference**	9:00÷11:05	**Plenary sessions** Topic V, Topic VI, Topic VII.
9:20÷10:35	**Plenary sessions** Topic I, Topic II, Topic III.		
10:35÷11:00	Break time		
11:00÷12:40	**Plenary sessions** Topic IV.	11:05÷11:30	Break time
12:40÷1:45	Break time	11:30÷12:30	**Oral sessions** Topic VI, Topic VII.
1:45÷3:15	**Oral sessions** Topic I, Topic II.		
3:15÷3:45	Break time		
3:45÷5:00	**Oral sessions** Topic III, Topic IV, Topic V.	12:30÷12:45	**Closing Conference LTLA-2023**
5:00÷6:00	**Poster session** Topic I, Topic II, Topic III, Topic IV, Topic V, Topic VI, Topic VII.		

Link to launch conference :

https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZTRhY2EyNzMtY2E3YS00MTllLTkxY2MtYWRkZmFkOTE3Mjkx%40thread.v2/0?context=%7b%22Tid%22%3a%2280f4c02e-2264-45f3-b124-20b24047d29b%22%2c%22Oid%22%3a%2272de1743-5728-41bd-bbbf-cc2439f902db%22%7d

Program

of the conference LTLA-2023

June 29-30, 2023.

OPENING CEREMONY

June 29, 2023 Thursday

Time: 09:00 AM – Central European Summer Time (CEST)

08:50-09:00

Registration of speakers, organizational issues

The conference will be held by "Join the meeting (MS Teams)". Links to the meeting will be sent by e-mail before the conference.

9:00-09:15

Forum opening, words of greeting

professor V. Bodak *Rector - Drohobych Ivan Franko State Pedagogical University, Ukraine*
professor V. Taranenko *conference Chairman - Institute of Physics of the NASU, Ukraine*
professor I. Stefaniuk *conference Chairman - University of Rzeszów, Poland*

June 29, 2023 Tuesday

Time: 9:20 AM – Central European Summer Time (CEST)

PLENARY SESSION

Topic I: "Physical and mathematical fundamentals of laser systems"
Topic II: "Development of lasers and laser systems"
Topic III: "Laser processing of materials "
Topic IV: "Laser deposition". **Track 1**

(9:20AM – 12:40PM)

Time	*Sub#*	*Authors*	*Title*
9:20AM – 10:35AM		***Chairman: professor L. Muravsky***	
9:20–9:45	I-L1	A. Negriyko[1], V. Bezrodnyi[1], T. Bezrodna[1], L. Kosyanchuk[2], O. Antonenko[2] *[1] Institute of Physics NAS of Ukraine, Kyiv, Ukraine* *[2] Institute of Macromolecular Chemistry NAS of Ukraine, Kyiv, Ukraine*	**Laser elements based on dye-doped polyurethane matrices**
9:45–10:10	II-L2	L. Fedorenko[1], D. Korbutyak[1], A. Evtukh[1], V. Naumov[1], V. Yukhymchuk[1], P. Onufrijevs[2], A. Medvids[2], H. Mimura[3] *[1] Lashkaryov Institute of Semiconductor Physics, National Academy of Sciences of Ukraine, Kyiv Ukraine;* *[2] Institute of Technical Physics, Riga Technical University, Riga, Latvia;* *[3] Research Institute of Electronics, Shizuoka University, Johoku, Naka-ku, Japan.*	**Stimulated UV Emission of ZnO Powder with Coherent and Incoherent Feedback**
10:10–10:35	III-L3	A. Medvids[1], P. Onufrijevs[1], J. Kaupužs[1], J. Padgurskas[2], A. Zunda[2], *[1] Institute of Technical Physics, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Riga, Latvia* *[2] Institute of Power and Transport Machinery Engineering, Vytautas Magnus University, Kaunas Lithuania*	**Anatase or Rutile TiO_2 Formation on Ti by Laser Radiation: Mechanical, Photocatalytic and Antibacterial Properties**
10:35–11:00	Pause, coffee-break.		

11:00AM – 12:40PM		***Chairman: professor A. Medvids***	
11:00–11:25	I-L4	B.V. Padlyak[1,2], I.I. Kindrat[1], R. Lisiecki[3], V.T. Adamiv[2] *[1] University of Zielona Góra, Institute of Physics, Zielona Góra, Poland* *[2] Vlokh Institute of Physical Optics, Lviv, Ukraine* *[3] Institute of Low Temperature and Structure Research of the Polish Academy of Sciences, Department of Spectroscopy of Laser Materials, Wrocław, Poland*	**Laser materials based on borate glasses, co-doped by Er and Ag**
11:25–11:50	IV-L5	B. Cieniek[1], I. Virt[1,2], I. Stefaniuk[1] *[1] Institute of Materials Engineering, College of Natural Sciences, University of Rzeszow, Rzeszow, Poland* *[2] Department of Physics and Information Systems, Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine.*	**Spectroscopic properties of nickel ions in $Zn_{0.99}Ni_{0.01}O$ thin film grown using PLD method**
11:50–12:15	IV-L6	A. Barlowski[1], P. Ciupak[1], K. Zembrowska[2], P. Sagan[3], T. Jasinski[1], M. Kuzma[2] *[1] Department of Physics and Medical Engineering, The Faculty of Mathematics and Applied Physics, Rzeszow University of Technology, Rzeszów, Poland;* *[2] Technical College, East European State University in Przemyśl, Przemyśl, Poland;* *[3] The Faculty of Mathematics, Physics, and Computer Science, Maria Curie-Skłodowska University Lublin, Lublin, Poland;*	**Self- aggregated nanoparticles of ZnCrTe formed by laser ablation**
12:15–12:40	IV-L7	I. Virt[1,2], P. Potera[2], B. Cieniek[2] *[1] Department of Physics and Information Systems, Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine;* *[2] Institute of Materials Engineering, College of Natural Sciences, University of Rzeszow, Rzeszow, Poland*	**Pulsed laser deposition of carbon nanotube films**
BREAK TIME (12:40PM– 1:45PM)			
Time: 1:45 PM – Central European Summer Time (CEST) **ORAL SESSION** **Topic I: "Physical and mathematical fundamentals of laser systems"** **Topic II: "Development of lasers and laser systems"** **Topic III: "Laser processing of materials "** **Topic IV: "Laser deposition":** **Topic V: "Laser technical and technology applications":**			**Track 1**
(1:45PM – 5:00PM)			
1:45PM – 3:15PM		***Chairman: professor L. Fedorenko***	
1:45–2:00	I-O1	O. Mys, D. Adamenko, I. Martynyuk-Lototska, R. Vlokh *O.G. Vlokh Institute of Physical Optics, Lviv, Ukraine*	**Enhancement of acousto-optic diffraction efficiency due to the ellipticity of optical eigenwaves caused by an external magnetic field and spontaneous electric polarization**
2:00–2:15	I-O2	I. Matsniev, V. Khodakovskyy, A. Negriyko *Institute of Physics NAS of Ukraine, Kyiv, Ukraine*	**Compact diode-pumped Nd:YAG laser**
2:15–2:30	I-O3	A. Derzhypolskyi, L. Derzhypolska, A. Negriyko *Institute of Physics NAS of Ukraine, Kyiv, Ukraine*	**M^2 measurement based on long range focusing of laser beam**

2:30–2:45	I-O4	I.I. Kindrat[1], B.V. Padlyak[1,2], R. Lisiecki[3], A. Drzewiecki[1], I.M. Teslyuk[2], V.T. Adamiv[2] *[1] University of Zielona Góra, Institute of Physics, Division of Spectroscopy of Functional Materials, Zielona Góra, Poland* *[2] Vlokh Institute of Physical Optics, Department of Optical Materials, Ukraine* *[3] Institute of Low Temperature and Structure Research of the Polish Academy of Sciences, Division of Optical Spectroscopy, Laser Materials Spectroscopy Group, Wrocław, Poland*	**Spectroscopy of the Tm-doped and Tm-Ag co-doped lithium tetraborate glasses**
2:45–3:00	I-O5	P. Potera[1], Ya. Zhydachevskii[2,3], D. Piwowarska[4], S.M. Kaczmarek[4] *[1] Institute of Materials Engineering, College of Natural Sciences, University of Rzeszow, Rzeszow, Poland* *[2] Lviv Polytechnic National University, Lviv, Ukraine* *[3] Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland* *[4] Institute of Physics, West Pomeranian University of Technology, Szczecin, Poland*	**Stable color centers induced in $PbMoO_4$ crystals by gamma quanta irradiation**
3:00–3:15	I-O6	R.Ya. Leshko [1], I.V. Bilynskyi [1,2], O.V. Leshko [1] *[1] Department of Physics and Information Systems, Drohobych Ivan Franko State Pedagogical University Drohobych, , Ukraine* *[2] Physics Department, Kryvyi Rih State Pedagogical University, Kryvyi Rih, Ukraine*	**Interlevel absorption of electromagnetic waves of the non-concentric spherical core-shell quantum dot**
3:15–3:45	Pause, coffee-break.		
3:45PM – 5:00PM	***Chairman: professor B.V. Padlyak***		
3:45–4:00	III-O7	Yu. Nykyruy[1], B. Cieniek[2], I. Stefaniuk[2], S. Mudry[1] *[1] Ivan Franko National University of Lviv, Metal Physics Department, Lviv, Ukraine* *[2] Institute of Materials Engineering, College of Natural Science, University of Rzeszow, Rzeszow, Poland*	**EMR study of the $Fe_{73.5}Si_{15.5}B_7Nb_3Cu_1$ amorphous ribbon modified by laser**
4:00–4:15	V-O8	A.V. Kuzmenko[1], and O.M. Butok[2] *[1] Branch of Applied Optics, Institute of Physics of National Academy of Sciences of Ukraine, Kyiv, Ukraine,* *[2] Institute for Information Recording of National Academy of Sciences of Ukraine, Kyiv, Ukraine*	**Phase retrieval for arbitrary complex-valued objects using structured illumination**
4:15–4:30	V-O9	M. Shopa[1], N. Ftomyn[2] *[1] Department of Atomic, Molecular and Optical Physics, Gdańsk University of Technology, Gdańsk, Poland* *[2] Faculty of Physics, Ivan Franko National University of Lviv, Lviv Ukraine*	**Optical rotation in the LBO and KTP nonlinear crystals**
4:30–4:45	V-O10	O. Banzak, H. Banzak *State University of Intellectual Technologies and Communications, Odessa, Ukraine*	**Development of an ionizing radiation detector based on CdZnTe-sensor for dosimetry**
4:45–5:00	V-O11	I. Zharchenko[1], O. Masalskyi[1,2], J. Gradauskas[1,2], S. Ašmontas[1], A. Sužiedėlis[1], A. Šilėnas[1], A. Čerškus[1,3], A. Rodin[4] *[1] Laboratory of Electronic Processes, Center for Physical Sciences and Technology, Lithuania,* *[2] Department of Physics, Vilnius Gediminas Technical University, Lithuania* *[3] Department of Mechatronics, Robotics and Digital Manufacturing, Vilnius Gediminas Technical University, Lithuania*	**Investigating Hot Carrier Effects in GaAs P-N Diodes under Pulsed Laser Irradiation**

		[4] *Laboratory of Solid State Lasers, Center for Physical Sciences and Technology, Lithuania*	
5:00PM – 6:00PM	**POSTER SESSION:** ***(5:00PM – 6:00PM)*** **Topics: I, II, III, IV, V, VI, VII.** **Discussions** ***5:00PM – 6:00PM Chairman: professor V. Kadan***		

June 30, 2023 Friday

Time: 9:00 AM – Central European Summer Time (CEST)

8:50-9:00

Registration of speakers, organizational issues

PLENARY SESSION

Topic V: "Laser technical and technology applications":

Topic VI: "Lasers in nanotechnologies":

Topic VII: "Biomedical laser applications": **Track 1**

(9:00AM – 11:05AM)

9:00AM – 11:05AM ***Chairman: professor M. Kuzma***

9:00–9:25	V-L8	V. Kadan[1,2], I. Pavlov[1,2], I. Blonskyi[1], T. Pavlova[2], Yu. Seriozhkin[3], A. Dmytruk[1] [1] *Institute of Physics of NAS of Ukraine, Kyiv, Ukraine* [2] *Department of Physics, Middle East Technical University, Ankara, Turkey* [3] *V. Lashkaryov Institute of Semiconductor Physics of NAS of Ukraine, Kyiv, Ukraine*	**Sensitive measurements of two-photon absorption in semiconductors by combining Z-scan and loss modulation**
9:25–9:50	V-L9	L. Muravsky, Z. Nazarchuk, O. Kuts *Karpenko Physico-Mechanical Institute of the NAS of Ukraine, Lviv, Ukraine*	**Determining the size and depth of square planar subsurface defects in laminated composites by optoacoustic technique**
9:50–10:15	V-L10	S. Ašmontas, A. Čerškus, J. Gradauskas, A. Grigucevičienė, R. Juškėnas, K. Leinartas, A. Lučun, O. Masalskyi, M. Mujahid, K. Petrauskas, A. Selskis, A. Sužiedėlis, E. Širmulis *Center for Physical Sciences and Technology, Vilnius, Lithuania*	**Laser induced photoresponse in perovskite solar cells**
10:15–10:40	VI-L11	Y. Shopa[1], D. Jakubczyk[2], G. Derkachov[2], M. Kolwas[2], I. Kamińska[2], T. Wojciechowski[2] [1] *Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland* [2] *Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*	**Two copropagating laser beams in the excitation and characterization of slowly evaporating microdroplet**
10:40–11:05	VI-L12	I. D. Stolyarchuk[1], O. O. Dan'kiv[1], A. I. Stolyarchuk[1], Yu. A. Pryima[1], O. V. Kuzyk[1], A. Medvids[2], V. D. Popovych[1], I. V. Hadzaman[1] [1] *Department of Physics and Information Systems, Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine.* [2] *Institute of Technical Physics, Riga Technical University, Riga, Latvia*	**Structural and optical properties of the nanoparticles of ZnTMO (TM: Co, Cr) generated by pulsed laser ablation in liquids and ultrasound wave-assisted**
11:05–11:30	Pause, coffee-break.		

Time: 11:30 AM – Central European Summer Time (CEST)

ORAL SESSION

Topic VI: "Lasers in nanotechnologies":
Topic VII: "Biomedical laser applications": **Track 1**

(11:30AM – 12:30PM)

11:30AM – 12:30PM ***Chairman: professor Y. Shopa***

11:30–11:45	**VI- O12**	T. Kavetskyy[1,2], D.P. Královič[3], O. Šauša[2,3], P. Kalinay[2], H. Švajdlenková[4], I. Donchev[5], O. Smutok[6], V. Soloviev[7], J. Ostrauskaite[8], A. Kiv[5,9] *[1]Drohobych Ivan Franko State Pedagogical University, Ukraine* *[2]Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia* *[3]Department of Nuclear Chemistry, Comenius University in Bratislava, Bratislava, Slovakia* *[4]Polymer Institute, Slovak Academy of Sciences, Bratislava, Slovakia* *[5]South-Ukrainian K.D. Ushynsky National Pedagogical University, Odesa, Ukraine* *[6]Department of Chemistry and Biomolecular Science, Clarkson University, New York, USA* *[7]Kryvyi Rih State Pedagogical University, Kryvyi Rih, Ukraine* *[8]Kaunas University of Technology, Kaunas, Lithuania* *[9]Department of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel*	**Study of local free volume under the influence of UV light in vegetable oil-based polymers**
11:45–12:00	**VII- O13**	D.A. Lesyk[1,3,4], O.S. Lymar [2], V.V. Dzhemelinskyi[1], D. Grzesiak[4], B. Powalka[4] *[1] Laser Systems and Advanced Technologies Department, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, Ukraine* *[2] MS Systems UA, Kyiv, Ukraine* *[3] Physical Principles for Surface Engineering Department, G.V. Kurdyumov Institute for Metal Physics of the NAS of Ukraine, Kyiv, Ukraine* *[4] West Pomeranian University of Technology, Szczecin, Poland*	**Features of laser powder bed fusion additive manufacturing and post processing of Co-Cr dental prosthesis**
12:00–12:15	**VII- O14**	O. B. Priyma *Truskavets City Hospital, Truskavets, Ukraine*	**Laser circumcision in the treatment of phimosis**
12:15–12:30	**VII- O15**	Y. Serozhkin, E. Venger, A. Sidnev *V.E. Lashkaryov Institute of Semiconductor Physics, Kyiv, Ukraine*	**Measurement of oscillations of the grape snail organs using a laser vibrometer.**
12:30–12:45	**Closing Conference LTLA-2023**		

RULES FOR PARTICIPATION

"**L**" – Lecture;
"**O**" – Oral;
"**P**" – Poster.

Official Language: **English**
Duration of **Plenary Lecture** presentation: **25 min**
Duration of **Oral** presentation: **15 min**
POSTER- prepare in *docx (*doc)

POSTER SESSION

5:00PM – 6:00PM ***Chairman: professor V. Kadan***

June 29, 2023

POSTER SESSION: Topics: I, II, III, IV, V, VI, VII

June 29, 2023 Tuesday **5:00–6:00**	**III-P1**	W. Żyłka, B. Cieniek, I. Stefaniuk *Institute of Materials Engineering, College of Natural Sciences, University of Rzeszow, Rzeszow, Poland*	**The effect of laser radiation on the properties of paint components, studied using the EMR method.**
	IV-P2	B. Cieniek[1], I. Virt[1,2], I. Rogalska[1,3], I. Stefaniuk[1] *[1] Institute of Materials Engineering, College of Natural Sciences, University of Rzeszow, Rzeszow, Poland* *[2] Department of Physics and Information Systems, Drohobych Ivan Franko State Pedagogical University, Drohobych, Ukraine* *[3] International Centre For Interfacing Magnetism And Superconductivity With Topological Matter, Institute of Physics Polish Academy of Sciences, Warsaw, Poland*	**Spectroscopic properties of nickel ions in $Zn_{0.9}Cu_{0.1}O$ thin film grown using PLD method**
	VI-P3	V. B. Holskiy, M. D. Markanytsch, S. V. Holska *Department of Physics, Drohobych Ivan Franko State Pedagogical Univetsity, Drohobych, Ukraine*.	**Linear quantum molecule formed from three spherical quantum dots.**
	VI- P4	O. Kuzyk[1], O. Dan'kiv[1], I. Stolyarchuk[1], R. Peleshchak[1,2], V. Kuhivchak[1], M. Sharafan[1], A. Medvids[3] *[1] Drohobych Ivan Franko State Pedagogical University, Ukraine;* *[2] Lviv Polytechnic National University, Ukraine;* *[3] Riga Technical University, Latvia*	**The spatio-temporal temperature redistribution in the film under the influence of pulsed laser irradiation**