

WELCOME TO INDLAS 2014

The conference "INDLAS 2014" is the fourth one in a series of international conferences dedicated to modern laser applications organized in Romania since 2007. The topics of this conference include lasers in materials science and processing, nonlinear photonics, optoelectronics and optical components, "Extreme Light Infrastructure – Nuclear Physics" (ELI – NP) & "Center for Advanced Laser Technologies" (CETAL) projects and related activities, laser metrology and testing, lasers in environment and life sciences, physics of plasma sources and applications, plasma & lasers industrial applications.

The aim of this international conference is to provide a good opportunity for the researchers working in the fields of lasers / plasma applications, including industrial lasers, to discuss their newest results, to share experience, to stimulate interdisciplinary research and the partnerships in the European Networks integrated in HORIZON 2020.

The position of our country, Romania, in the Central-Eastern Europe can play an important role in the promotion of the scientific cooperation in this region, in order to increase its role in the European Research Area. Since 2008 the National Institute for Laser, Plasma and Radiation Physics (INFLPR) had won / participated in a number of very important international projects, as LASERLAB, ELI-Preparatory Phase, ELI – NP. We specially mention the CETAL facility of the INFLPR that includes the first PW laser in Romania, which will be functional in the mid of this year.

The organization of "INDLAS 2014" was possible by the action and support of several national and international institutions. We mention INFLPR, APELLASER SRL, INFLPR – OSA Student Chapter. Thanks are due to the co-sponsoring organizations and companies to the success of the conference: Romanian Association of Photonics (ARFO), TEHNOOPTOELECTRONICA S.A., Coherent, ProtoFlex Corporation U.S.A. and Foundation for Democracy, Culture and Liberty (FDCI).

By the efforts of the Scientific Committee, 77 scientific papers of authors from 7 countries have been selected for presentation at "INDLAS 2014", in 16 invited lectures, 15 oral presentations and 46 posters. We express our gratitude to the invited professors and to all participants for their high level work.

We would like to express our thanks to the members of the Scientific Committee and the Organizing Committee of "INDLAS 2014", for their work. We thank to the Directors of the INFLPR Dr. Ion Morjan and Dr. Traian Dascalu, and to the Head of the Laser Department, Dr. Viorica Stancalie. Thanks to Drd. Petronela Gheorghe, Dr. Silviu T. Popescu, Mariana Buzatu, Dr. Laura Mihai, Gabriela Stan, Cristian Stan for their work for the Conference.

Finally, we hope that the participants in "INDLAS 2014" will enjoy the scientific sessions and the Carpathian Mountains, will make new friends and will strengthen their scientific collaboration.

Dr. M. Udrea, Dr. A. Petris, Dr. V. R. Medianu

CONFERENCE PROGRAM

<i>Date</i>	<i>Time</i>	<i>Conference Hall (within the Theater Hall)</i>
May 19, Monday	16.00 – 18.00	Registration
	18.30	Get Together Party (Club Vila Bran Restaurant)
May 20, Tuesday	09.00 – 09.15	Opening session
		Session 1
		<i>Chair: Victor Rares Medianu</i>
	09.15 – 10.00	I 1. Mauro Pereira Microscopic Theory of Semiconductor Lasers and Applications to THz and Mid Infrared (TERA-MIR) Spectroscopy
	10.00 – 10.45	I 2. Paul Harten Novel laser technologies for smooth and uniform metal surface treatment
	10.45 – 11.00	Coffee Break
		Session 2
		<i>Chair: Mauro Pereira</i>
	11.00 – 11.45	I 3. Razvan Dabu Architecture of high power femtosecond lasers
	11.45 – 12.30	I 4. Ioan Dancus CETAL 1PW laser system status and laser developments roadmap for ELI-NP
	12.30 – 14.30	Lunch
		Session 3
		<i>Chair: Valentin Craciun</i>
	14.30 – 15.15	I 5. Dragos Seuleanu and Ioan Ursu Scientific Research - Innovation - Clusters: The new highway for reindustrialization of the EU
	15.15 – 16.00	I 6. Maria Dinescu Laser material printing for sensors applications
	16.00 – 16.15	O 1. Justyna Chrzanowska Investigation of Wavelength Influence on Rhenium Diboride Films Prepared by PLD Method
16.15 – 16.30	Coffee Break	
	Session 4	
	<i>Chair: Maria Dinescu</i>	

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	16.30 – 17.15	I 7. Adrian Petris Light Guiding Light in Lithium Niobate
	17.15 – 18.00	I 8. Aurelian Popescu Turning Laser Diodes into Tunable Light Sources for High Resolving Power Spectroscopy
	18.00 – 18:15	O2. Radu F. Stancu Akinetic optical swept source for OCT applications
	18.15 – 18:30	O 3. Mihai Oane Two temperature model for metals: a new “radical” approach: theory versus experiment
May 21, Wednesday		Session 5
		<i>Chair: Mihail Dumitrescu</i>
	09.00 – 09.45	I 9. Axel Wehling Emerging Laser Design for demanding Ultrafast Applications
	09.45 – 10.30	I 10. Valentin Craciun Pulsed laser deposition of transitional metals carbide, nitride and carbo-nitride hard coatings: chemistry, structure and mechanical properties
	10:30 – 10.45	O 4. Silviu T. Popescu Interferometric measurement of light induced refractive index changes
	10.45 – 11.00	Coffee Break
		Session 6
		<i>Chair: Razvan Dabu</i>
	11.00 – 11.45	I 11. Joerg Hermann Modelling of Plasma Emission Spectra for Quantitative Elemental Analysis via Laser-Induced Breakdown Spectroscopy
	11.45 – 12.30	I 12. Hubertus von Bergmann High pressure CO ₂ amplifiers for short pulse amplification
	12.30 – 14.30	Lunch
		Session 7
		<i>Chair: Adrian Petris</i>
14.30 – 15.15	I 13. Mihail Dumitrescu Semiconductor laser diodes with laterally-coupled ridge-waveguide surface gratings	
15.15 – 16.00	I 14. Marian Zamfirescu Dynamics of laser irradiated surfaces at picosecond time scale	

<i>Date</i>	<i>Time</i>	<i>Conference Hall (within the Theater Hall)</i>
	16.00 – 16.15	O 5. Anita Visan Matrix Assisted Pulsed Laser Evaporation synthesis of biomimetic nanocrystalline apatite coatings with applications in medicine
	16.15 – 18.15	Poster Session and Coffee Break
May 22, Thursday		Session 8
		<i>Chair: Paul Harten</i>
	09.00 – 9.45	I 15. Mihai Lucian Pascu The use of nonantibiotics modified by exposure to laser radiation to fight multiple drug resistance
	9.45 – 10.30	I 16. Mihai Ganciu Prospects of Space Radiation Environment Simulation by Using High Power Laser Infrastructures
	10.30 – 10.45	O 6. Bogdan Mihalcea Prospects towards an optical system for trapping and cooling of $^{138}\text{Ba}^+$ ions at CETAL
	10.45 – 11.00	Coffee break
		Session 9
		<i>Chair: Mircea Udrea</i>
	11.00 – 11.15	O7. Mihai Selagea Industrial Laser Applications in Romania
	11.15 – 11.30	O8. Zygmunt Mucha Analytic model for laser welding with deep penetration
	11.30 – 11.45	O 9. Mulczyk Krystian Laser cutting of steel cables used to manufacture pull rods in the automotive industry
	11.45 – 12.00	O 10. Kurp Piotr Thin-walled titanium's alloy tubes circumferential welding by Nd:YAG compared CO ₂ laser via theoretical conductive welding model
	12.00 – 12.15	O 11. Tatiana Alexandru Laser photodecomposition of phenothiazine derivative
	12.15 – 12.30	O 12. Mihai Boni Study of the dynamic effects at the laser beam – pendant droplet interaction
12.30 – 12.45	O 13. Adriana Smarandache Spectroscopic studies of unexplored imidazolidines in view of their DNA binding affinity characterization	

<i>Date</i>	<i>Time</i>	<i>Conference Hall (within the Theater Hall)</i>
	12.45 – 13.00	O 14. Lucica Boroica New boro-phosphate glasses for optoelectronics and photonics
	13.00 – 13.15	O 15. Daniela Dogaru Study of low clouds radiative forcing using MODTRAN 4 model
	<i>13.15– 15.00</i>	<i>Lunch</i>
	<i>15.00 – 19.30</i>	<i>Free activities</i>
	<i>19.30</i>	<i>Collegial Dinner (Club Vila Bran Restaurant)</i>
May 23, Friday	09.00 – 10.00	Round Table of the Romanian Photonics Association (ARFO)
	10.00 – 11.00	Discussions and Closing Session