September 16-19, 2025

Yerevan, Ashtarak, Armenia

International Conference

Laser Physics 2025

Organized by the Institute for Physical Research of

National Academy of Sciences of Armenia

PROGRAM

The Conference is organized in the framework of the International Year of Quantum Science and Technology (IYQ) 2025, declared by UNESCO for the celebration of the major milestone, the 100th anniversary of the development of quantum mechanics

INTERNATIONAL YEAR OF
Quantum Science
and Technology

Laser Physics 2025

TOPICS OF LP 2025

- Lasers, New Laser Technologies and Applications
- Optical and Scintillating Materials, Characterization Methods and Techniques
- Light-Matter Interaction, Including Resonant Interaction with Atoms
- Laser-Assisted Surface Effects
- Nonlinear Optics and Novel Phenomena
- Spectroscopy for Characterization of Materials
- Laser Spectroscopy and Mathematical Modelling
- Physical Optics, Atomic Physics
- Optical Magnetometry
- Matter Waves
- Optical Properties of Structured Media, Micro and Nano-Optics
- Optoelectronics
- Photonics, Photonic Systems, Biophotonics
- Optical Sensors
- Graphene for Photonics
- Holography and Imaging
- Quantum Physics and Applications
- Quantum Optics
- Quantum Information

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The conference is sponsored by the Higher Education and Science Committee of Armenia. "IPR Armenia" Optica Student Chapter sponsors the Best Student Presentation Award.

International Conference

Laser Physics 2025

16-19 September, 2025

PROGRAM

Tuesday, 16 September 2025

The session takes place in the Hall of the National Academy of Sciences of Armenia

Registration of Participants 09:00 – 10:00

Opening Ceremony: 10:00 – 10:30	
10:00 – 10:10	**Conference Opening: Welcome Speech** ***Pavel Muzhikyan*** *Director of the Institute for Physical Research, NAS of Armenia*
10:10 – 10:20	**Welcome Speech** ***Aram Papoyan*** *Vice-President of the National Academy of Sciences of Armenia*
10:20 – 10:30	**Welcome and Overview** ***Rafael Drampyan*** *Co-Chairman of the Conference,* *Institute for Physical Research, NAS of Armenia*

Morning Session: 10:00 - 13:10 **Chairmen: *Aram Papoyan, Rafael Drampyan***	
10:30 – 11:10	**Plenary Report** **Using optical nanofibers as a link for Rydberg atom-based quantum networks** ***A. Kortel[1], A. Raj[1], A. Vylegzhanin[1], K. Jadeja[1], S. Nic Chormaic[1]*** *[1]OIST Graduate University, Onna-son, Okinawa, Japan*
11:10- 11:50	**Plenary Report** **Quantum Light and Fluids: Applications in Photonic Simulation and Annealing** ***P.G. Savvidis[1,2]*** *[1]Physics Department, Westlake University, Hangzhou, Zhejiang, China* *[2]Institute of Electronic Structure and Laser, FORTH, Heraklion, Crete, Greece*
11:50- 12:10	**Coffee Break**
12:10 – 12:40	**Invited Report** **Application of Heun Functions in Quantum Physics** ***A. Ishkhanyan[1]*** *[1]Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia*
12:40 – 13:10	**Invited Report** **Entanglement of Identical Particles and the Principle of the Common Cause** ***A. Hovhannisyan, A. Allahverdyan*** *[1] Alikhanyan National Laboratory (Yerevan Physics Institute), Yerevan, Armenia*
13:10 – 14:10	**Lunch**

Afternoon Session: 14:10 - 16:40 Chairmen: *Claude Leroy, Riccardo Cicchi*	
14:10 – 14:50	**Plenary Report** **Making Statistics Work: Quantum Engines in Ultracold Gases** ***J. Koch[1], K. Menon[2], E. Cuestas[2], S. Barbosa[1], E. Lutz[3], T. Fogarty[2], Th. Busch[2], and A. Widera[1]*** *[1]Department of Physics, RPTU Kaiserslautern-Landau, Kaiserslautern, Germany* *[2]Quantum Systems Unit, OIST Graduate University, Okinawa, Japan* *[3]Institute for Theoretical Physics I, University of Stuttgart, Stuttgart, Germany*
14:50 – 15:30	**Plenary Report** **Quantum Gates and Simulations with Rydberg Atoms** ***D. Petrosyan[1]*** *[1]Institute of Electronic Structure and Laser, Foundation for Research and Technology – Hellas, GR-70013 Heraklion, Crete, Greece*
15:30-15:40	**Time Break**
15:40 – 16:10	**Invited Report** **Random Lasers with Scale-Free Network Architecture** ***A. P. Alodjants[1,2], P.V. Zakarenko[1], D.V. Tsarev[1], D.L. Zaitsev[2]*** *[1]ITMO University, St. Petersburg, Russia* *[2]Moscow Institute of Physics and Technology, Dolgoprudny, Russia*
16:10 – 16:40	**Invited Report** **Doppler-Free Spectroscopy of Atoms with Nano-Cells and Applications** ***A. Sargsyan[1], D. Sarkisyan[1]*** *[1]Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia*
16:40	**End of Session** **Group Photo**

Wednesday, September 17, 2025

Institute for Physical Research, NAS of Armenia

Registration of Participants 09:30 – 10:00; 13:00 – 14:00

Morning Session 10:00 – 13:00 Chairmen: *Sile Nic Chormaic, Tigran Vartanyan*	
10:00 – 10:40	**Plenary Report** **Multimodal Non-Linear Optical Microscopy for Tissue Characterization and Diagnostics** ***R. Cicchi*** *Istituto Nazionale di Ottica, CNR, Florence, Italy*

10:40 – 11:10	**Invited Report** **Application of Photovoltaic Tweezers for Non-invasive Study of *E. coli* Bacteria by Phase-sensitive Optical Microscopy** ***Lusine Tsarukyan[1], Anahit Badalyan[1], Michael Schwab[2], Kerstin Bellmann[2], Tigran Galstian[3], André Marette[2], Rafael Drampyan[1]*** *[1]Institute for Physical Research, NAS of Armenia* *[2]Department of Medicine, Hôpital Laval, Université Laval, Québec, Canada* *[3]Department of Physics, Engineering Physics and Optics, Université Laval, Québec, Canada*
11:10 – 11:40	**Invited Report** **Fully Transparent Surface Electrodynamic Traps: The Aspects of Preparation and Further Application** ***D. P. Shcherbinin, S. S. Rudyi, V. V. Rybin, M. S. Semynin, D. A. Glukharev, E. V. Soboleva, A. V. Ivanov*** *ITMO University, Saint Petersburg, Russian Federation*
11:40 – 12:00	**Coffee Break**
12:00– 12:20	**Autofluorescence Lifetime Imaging Probe for Optical Diagnostics of Liver Tumors** ***D. Suraci[1], L. Tirloni[2], C. Gatto[2], S. Pillozzi[3], L. Antonuzzo[3,4], A. Taddei[2,4], and R. Cicchi[1,5]*** *[1]National Institute of Optics, National Research Council (CNR-INO), Florence, Italy* *[2]Hepatobiliopancreatic Surgery, Careggi University Hospital, Florence, Italy* *[3]Medical Oncology Unit, Careggi University Hospital, Florence, Italy* *[4]Department of Experimental Clinical Medicine, University of Florence, Italy* *[5]European Laboratory for Non-linear Spectroscopy (LENS), Florence, Italy*
12:20– 12:40	**Single-and Collective Microparticles Nonlinear Dynamics in the Hermite-Gauss Optical Beams** ***S.S. Rudyi, D.P. Shcherbinin, V.V. Rybin, M.S. Semynin, E.E. Slepneva, E.V. Soboleva, A.V. Ivanov*** *ITMO University, Saint Petersburg, Russian Federation*
12:40– 13:00	**Laser Diffractometry of an Ensemble of Polydisperse Microparticles Within the Framework of the Two-Wavelength Model** ***H.P. Sargsyan[1], T.K. Sargsyan[2], M.H. Avetisyan[3]*** *[1]Institute of Chemical Physics after A.B. Nalbandyan of the NAS RA, Yerevan, Armenia* *[2]Advanced Technology Group ATG CJSC, Yerevan, Armenia* *[3]Armenian National Agrarian University, Yerevan, Armenia*
13:00 – 14:00	**Lunch**

Afternoon Session 14:00 – 17:00 Chairmen: *Thomas Busch, David Petrosyan*	
14:00 – 14:30	**Invited Report** **On the New Method for the Precise Determination of the Intramolecular Potential Energy Surface on the Basis of Microwave and Submillimeter-Wave Spectra** ***O. N. Ulenikov*, E. S. Bekhtereva, O. V. Gromova, S. S. Sidko*** *National Research Tomsk Polytechnic University, Tomsk, Russia*
14:30- 15:00	**Invited Report** ***Calculations of Magnetic Field Values that Cancel the Transitions of Alkali Atoms*** ***Claude Leroy*[1], Artur Aleksanyan[2], Rodolphe Momier[3]** [1]*Laboratoire Interdisciplinaire Carnot de Bourgogne, UMR CNRS 6303, Université Bourgogne, Dijon, France* [2]*Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia* [3]*Institut für Physik, Johannes Universität Mainz, Mainz, Germany*
15:00 – 15:30	**Invited Report** **Resonance Kapitza-Dirac Diffraction of an Atom in a Standing Wave as a Probe of Quantum Superposition Principle** ***A.Zh. Muradyan*** *Yerevan State University, Yerevan, Armenia*
15:30 – 15:50	**Coffee Break**
15:50 – 16:20	**Invited Report** **Doppler-Free Spectroscopy of 6S-7P Atomic Transition Realized by a Cs Nanocell** **Armen Sargsyan[1], Emmanuel Klinger[2], Rodolphe Boudot[2], David Sarkisyan[1]** [1]*Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia* [2]*Universite Marie et Louis Pasteur, SUPMICROTECH, CNRS, Institut FEMTO-ST, Besancon, France*
16:20 – 16:40	**Characterizing Electro-Optic Phase Modulations for Temporal Mode Transformations** ***S. Ashby*** *University of Oregon, Eugene, United States*
16:40 – 17:00	**Thermal Infrared Human Detection with Elliptical Aperture Horn Providing Wide Horizontal Angle of View and Coverage Area** ***A. E. Martirosyan*[1], R. B. Kostanyan[1], V. A. Martirosyan[2], P. H. Muzhikyan[1]** [1]*Institute for Physical Research, National Academy of Sciences of Armenia,* [2]*CentraleSupélec, Université Paris-Saclay, Gif-sur-Yvette, France*
17:15	**Bus to Yerevan**

Thursday, September 18, 2025

Morning Session 10:00 – 11:10 **Chairman:** ***Alexander Alodjants***	
10:00 – 10:40	**Plenary Report** **Metal-Enhanced Absorption and Luminescence: Implications of Surface Plasmon Excitation** ***T.A. Vartanyan*** *ITMO University, St. Petersburg, Russian Federation*
10:40 – 11:10	**Invited Report** **Luminescence and Energy Transfer Processes in Sc Containing Garnets** ***D. Spassky[1], I. Kudryavtseva[1], A.G. Petrosyan[2]*** *[1] Institute of Physics, University of Tartu, Estonia* *[2] Institute for Physical Research, Ashtarak, Armenia*
11:10 – 11:30	**Coffee Break**

Special Session 11:30 – 15:30 ***The Best Student Oral Presentation Awards*** **Chairmen:** ***Armen Sargsyan, Lusine Tsarukyan, Emil Gazazyan, Astghik Kuzanyan, David Petrosyan***	
11:30-11:50	**Parametric Resonance and Phase Transitions in the Quadrupole-Trap-Based Nonlinear Levitodynamic System** ***V. V. Rybin, S. S. Rudyi, M. S. Semynin, A. V. Ivanov, D. P. Shcherbinin*** *ITMO University, Saint Petersburg, Russian Federation*
11:50-12:10	**Metrological Properties of Dual-Frequency Doppler-Free Resonances in ^{87}Rb and ^{85}Rb Atoms** ***K.M Sabakar, V.L. Velichanskiy, D.S. Chuchelov, E.A. Tsygankov, S.A. Zibrov, M.I. Vaskovskaya, V.V. Vassiliev*** *P. N. Lebedev Physical Institute, Russian Academy of Sciences, Moscow, Russia*
12:10-12:30	**Microwave-Optical Double-Resonance Spectroscopy in a Rubidium Microcell** ***A.A. Idrisova[1,2], A.D. Sargsyan[3], D.H. Sarkisyan[3], V.I. Balykin[1,2], A.E. Afanasiev[1]*** *[1]Institute of Spectroscopy, Russian Academy of Sciences, Troitsk, Moscow, Russia* *[2]National Research University Higher School of Economics, Moscow, Russia* *[3]Institute for Physical Research, NAS of Armenia*
12:30-12:50	**Global Analysis of Quadrupole Hyperfine Structure in Excited Vibrational States of the Methylene Chloride Molecule** ***V. E. Nikolaeva, O. V. Gromova, E. S. Bekhtereva, O. N. Ulenikov*** *National Research Tomsk Polytechnic University, Tomsk, Russia*

12:50-13:10	**Comprehensive Absolute Line Strengths Analysis of the $^{28}SiH_4$ Octad: The 24 sub-Bands of the Octad in the Region of 2600-3400 cm^{-1}** ***E. D. Gorbacheva*, E. S. Bekhtereva, O. V. Gromova, O. N. Ulenikov*** *National Research Tomsk Polytechnic University, Tomsk, Russia*
13:10-14:10	**Lunch**
14:10-14:30	**Optical Reservoir Computing with Engineered Structure and Tunable Coupling** ***N. Marinin*, M. Rafayelyan*** *Yerevan State University, Armenia*
14:30-14:50	**Polymer-Immobilized Topological Solitons Generated via Low-Intensity Light in Dye-Doped Cholesteric Systems** ***Darina Darmoroz*, Sergey Shvetsov, Tetiana Orlova, and Mushegh Rafayelyan*** *Yerevan State University, Armenia*
14:50-15:10	**Four-Parametric Generalization of the Second Demkov-Kunike Two-State Model** ***M.K. Margaryan*[1], A.M. Ghazaryan[1], A.M. Ishkhanyan[1]*** [1]*Institute for Physical Research, NAS of Armenia*
15:10-15:30	**Direct Observation of the Quantum Phase of a Free-falling Object** ***Or Dobkowski[1], Barak Trok[1], Peter Skakunenko[1], Yonathan Japha[1], David Groswasser[1], Maxim Efremov[2,3], Chiara Marletto[4], Ivette Fuentes[4,5], Roger Penrose[4], Vlatko Vedral[4], Wolfgang P. Schleich[3,6], and Ron Folman[1]*** [1]*Ben-Gurion University of the Negev, Be'er Sheva, Israel* [2]*German Aerospace Center, Institute of Quantum Technologies, Ulm, Germany* [3]*Institut für Quantenphysik and Center for Integrated Quantum Science and Technology, Universität Ulm, Ulm, Germany* [4]*University of Oxford, Oxford, United Kingdom* [5]*University of Southampton, Southampton, United Kingdom* [6]*Hagler Institute for Advanced Study at Texas A&M University, Institute for Quantum Science and Engineering, and Department of Physics and Astronomy, Texas A&M University, USA*
15:30-15:50	**Coffee Break**
15:50-16:30	**Awarding of the Prizes**

Poster Session 16:30 – 18:00 **Chairmen**: ***Armen Sargsyan, Lusine Tsarukyan, Emil Gazazyan, Astghik Kuzanyan*** **See page 12**	
18:00	**Bus to Yerevan**

Friday, September 19, 2025

Morning Session 10:00 – 12:40 **Chairmen**: ***Pavlos Savvidis, David Sarkisyan***	
10:00 – 10:30	**Invited Report** **Double- and Single-Frequency Doppler-Free Spectroscopy of Alkali-Metal Atoms: Applications to Atomic Clocks** ***E.A. Tsygankov, D.S. Chuchelov, K.M. Sabakar, M.I. Vaskovskaya, V.V. Vassiliev, S.A. Zibrov, V.L. Velichansky*** *P.N. Lebedev Physical Institute of the Russian Academy of Sciences, RF*
10:30 – 11:00	**Invited Report** **Film Temperature Sensor Based on Thermoelectric Effect** ***R.D. Golubev[1], V.V. Loboda[1], V.A. Gevorgyan[2]*** *[1]Peter the Great St. Petersburg Polytechnic University, Saint-Petersburg, Russia* *[2]Russian-Armenian University, Yerevan, Armenia*
11:00 -11:20	**Nanoroughness Induced Antireflectivity in Opaque Systems** ***V. Gareyan[1], N. Margaryan[1], Zh. S. Gevorkian[1,2]*** *[1]Alikhanyan National Laboratory, Yerevan, Armenia* *[2]Institute of Radiophysics and Electronics, Ashtarak, Armenia*
11:20 – 11:40	**Coffee Break**
11:40 – 12:00	**On The Quantum Motion of a Single Photon in a Nanofiber and Its Decay into Two Entangled Photons** ***A. Gevorkyan[1,2]*** *[1]Institute for Informatics and Automation Problems, NAS of Armenia* *[2]A. B. Nalbandyan Institute of Chemical Physics, NAS of Armenia*
12:00 – 12:20	**Third harmonic generation as a monitoring tool for precision glass processing** ***M.L. Sargsyan[1,2], M.M. Sukiasyan[1,2], T.K. Sargsyan[1], A.S. Yeremyan[1]*** *[1]CANDLE Synchrotron Research Institute, Yerevan, Armenia* *[2]Yerevan State University Yerevan, Armenia*
12:20 – 12:40	**Influence of Electric Field on the Graphite Coating of Aluminum Foil** ***R.N. Balasanyan, G.R. Badalyan, I.G. Grigoryan, P.H. Muzhikyan, R.B. Kostanyan*** *Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia*
12:40 – 13:10	**Small Group Lab Tours**
13:10 – 14:10	**Lunch**
14:10 –15:00	**Closing Ceremony**
15:10	**Bus to Yerevan**

Poster №	Posters' List
1	**Physics-Informed Neural Network Modeling of Spatiotemporal Dynamics in Liquid Crystals via Complex Ginzburg–Landau Equation** ***A. A. Hayrapetyan, S. A. Shvetsov, M. S. Rafayelyan*** *Yerevan State University, Institute of Physics, Yerevan, Armenia*
2	**Optical Reservoir Computing for liquid crystal dynamics prediction** ***M. Rafayelyan[1], A. Shakhkyan[2]*** *Yerevan State University, Institute of Physics, Yerevan, Armenia*
3	**Hardware-Software System Based on the MDR-4 Monochromator for Studying Photoelectric Characteristics** ***A. Khachaturova, A. Arakelyan*** *Institute for Physical Research, National Academy of Sciences, Ashtarak, Armenia*
4	**Single-Mode Propagation of a THz Pulse in a Waveguide** ***A. S. Nikoghosyan[1], V. R. Tadevosyan[1], A. A. Poghosyan[1],*** *Yerevan State University, Yerevan, Armenia*
5	**Online Learning Framework for Arbitrary Transmission Matrix Engineering** ***A. Sargsyan, A. Tigranyan, H. Mikayelyan, M. Rafayelyan*** *[1]Yerevan State University, Yerevan, Armenia*
6	**Hopping and Drift Mechanisms of Charge Carrier Transport in CdS:Li Films** ***A. Arakelyan[1], R. Hovsepyan[1], N. Aghamalyan[1], Y. Kafadaryan[1], A. Khachaturova[1], H. Mnatsakanyan[1], T. Vartanyan[2], A. Poghosyan[1]*** *[1]Institute for Physical Research, National Academy of Sciences, Ashtarak, Armenia* *[2]ITMO University, St. Petersburg, Russia*
7	**Coherent Control of Shallow Impurity Quantum States in a Graphene Monolayer by Short Laser Pulses with Quadratic Frequency Chirp** ***A.A. Avetisyan[1], A.P. Djotyan[1], G.P. Djotyan[2]*** *[1]Yerevan State University, Yerevan, Armenia* *[2]HUN-REN Wigner Research Centre for Physics, Budapest, Hungary*
8	**Investigation of Collimated Emission at 420 nm in Rubidium Vapor: Laboratory Model of Atmospheric Phenomena and Coherence Analysis** ***M. Khanbekyan, S. Hayrapetyan, D. Bostanjyan*** *Institute for Physical Research, National Academy of Sciences of Armenia, Ashtarak, Armenia*
9	**Evolution of Adiabatic States in a Dissipative Three-Level Systems** ***E. A. Gazazyan[1,2], G. G. Grigoryan[1]*** *[1]Institute for Physical Research of NAS, Ashtarak, Armenia* *[2]Institute for Informatics and Automation Problems, of the National Academy of Sciences of the Republic of Armenia, Yerevan, Armenia*

10	**Distribution of Yb Ions in the Lattice of 15%Yb:(Lu,Y)AG Transparent Laser Ceramics with Different Lu/Y Balance** ***G. Demirkhanyan[1], B. Patrizi[2], G. Toci[2], M. Vannini[2], J. Li[4], A. Pirri[3], Y. Feng[4], R. Kostanyan[1], P. Muzhikyan[1]*** [1]*Institute for Physical Research of NAS, Armenia* [2]*Istituto Nazionale di Ottica, CNR, Sesto Fiorentino, Fi, Italy* [3]*Istituto di Fisica Applicata "Carrara", CNR, Sesto Fiorentino, Fi, Italy* [4]*Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China*
11	**Growth and Investigation of $Tm_3Al_5O_{12}$ Garnet Doped with Li^+ Ions** ***G. Ts. Kharatyan, K.L. Hovhannesyan, A.V. Yeganyan, A.G. Petrosyan*** *Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia*
12	**Communication via Light in Free Space** ***G. Martirosyan, V. Papoyan and M. Khanbekyan*** *Institute for Physical Research NAS of Armenia, Ashtarak, Armenia*
13	**Geometrical Phase Modulation of Microwaves via Liquid Crystals** ***H. A. Avetisyan, V.L. Grigoryan, M.S. Rafayelyan*** *Yerevan State University, Institute of Physics, Yerevan, Armenia*
14	**Optical Control of Umbilical Defects in Liquid Crystals** ***H. H. Hakobyan, V. L. Grigoryan*** *Yerevan State University, Institute of Physics, Yerevan, Armenia*
15	**Investigation of Li^+ Codoped $YAlO_3$:Ce Scintillation Crystals** ***K.L. Hovhannesyan[1], G. Kharatyan[1], M.V. Derdzyan[1], A. Yeganyan[1], G. Badalyan[1], I. Ghambaryan[1], C. Dujardin[2,3], A.G. Petrosyan[1]*** [1]*Institute for Physical Research, National Academy of Sciences of RA, Ashtarak, Armenia* [2]*Institut Lumière Matière UMR 5306 Université Claude Bernard Lyon 1-CNRS, Villeurbanne, France* [3]*Institut Universitaire de France (IUF), France*
16	**Hard X-Ray Zernike-Type Phase-Contrast Imaging Based on a Two-Block Crystal System with Parallel Blocks of Equal Thickness** ***L.A. Haroutunyan*** *Yerevan State University, Yerevan, Armenia*
17	**Simulation of Electronic Properties of Volcano-Shaped Quantum Rings with Type-II Band Alignment** ***L.S. Yeranyan, M.T. Sahakyan, K.M. Gambaryan*** *Institute of Physics, Yerevan State University, Yerevan, Armenia*
18	**Light-Driven Antimicrobial Therapy of Cationic Porphyrins** ***L. Aloyan[1,2], A. Galstyan[1], S. Hakobyan[1], G. Khachatryan[1]*** [1]*Alikhanyan National Science Laboratory (Yerevan Physics Institute), Yerevan, Armenia* [2]*Yerevan* State *University, Yerevan, Armenia*

19	**$W/La_{0.99}Ce_{0.01}B_6/Mo/Al_2O_3$ Thermoelectric Sensor of Single Photon Detector with High System Efficiency at UV Wavelengths** ***A.A. Kuzanyan, L.G. Mheryan, V.R. Nikoghosyan, A.S. Kuzanyan*** *Institute for Physical Research of NAS of Armenia, Ashtarak, Armenia*
20	**Comparison of Air-Annealing and γ-Ray Irradiation Effects in YAG:Pr and YAG:Pr,Li Scintillation Crystals** ***M.V. Derdzyan[1], K.L. Hovhannesyan[1], I. Ghambaryan[1], G. Kharatyan[1], C. Dujardin[2,3], A.G. Petrosyan[1]*** *[1]Institute for Physical Research, National Academy of Sciences of RA, Ashtarak, Armenia* *[2] Institut Lumière Matière UMR 5306 Université Claude Bernard Lyon 1-CNRS, France* *[3]Institut Universitaire de France (IUF)*
21	**Evaluating the Impact of Linear Correction on Spectral Phase Reconstruction** ***M. Papyan[1], L. Mikaelyan[1], M. Sukiasyan[1,2], A. Kutuzyan[2]*** *[1]CANDLE Synchrotron Research Institute, Yerevan, Armenia* *[2]Ultrafast Optics and Photonics Laboratory, Yerevan State University, Armenia*
22	**pH-Dependent Structural Transitions in Complementary Telomeric DNA Strands: Competition Between Duplex, G-Quadruplex, and i-Motif States** ***M.Kh. Badalyan, Ts.M. Jomardyan, I.V. Vardanyan, Y.B. Dalyan*** *Department of Molecular Physics, Yerevan State University, Armenia*
23	**Absorption, Photoluminescence and Raman Spectra of Oxyfluoride Barium Borate Aluminosilicate Glasses Doped by Nd and Er Ions** ***N. R. Aghamalyan[1], M. N. Nersisyan[1], Ye. A. Kafadaryan[1], N. B. Knyazyan[2], V. V. Baghramyan[2], and A. S. Saakov[3]*** *[1]Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia* *[2]Institute of General and Inorganic Chemistry, NAS of Armenia, Yerevan, Armenia* *[3]Institute of Geological Sciences, NAS of Armenia, Yerevan, Armenia*
24	**Neural Network-Assisted Optimization of Laser Fields for STIRAP in Multilevel Quantum Systems** ***Roman Sahakyan[1], Roman Sargsyan[1], Edgar Pogosyan[2], Emil Gazazyan[3,4]*** *[1]Russian-Armenian University, Yerevan, Armenia* *[2]Sirius University, Krasnodar region, Sirius Federal Territory. Russian Federation,* *[3]Institute for Physical Research of the National Academy of Sciences of RA, Ashtarak, Armenia* *[4]Institute for Informatics and Automation Problems, of the NAS of Armenia, Yerevan, Armenia*
25	**High Reading Speed Single-Transistor Capacitive Memory Cell Build on Li-Doped ZnO Thin Films** ***A. Arakelyan[1], R. Hovsepyan[1], N. Aghamalyan[1], Y. Kafadaryan[1], A. Khachaturova[1], H. Mnatsakanyan[1], T. Vartanyan[2], A. Poghosyan[1]*** *[1]Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia* *[2]ITMO University, St. Petersburg, Russia*
26	**Measurement of the Second-Order Coherence and The Nature of a Light Source** ***S. Hayrapetyan and M. Khanbekyan*** *Institute for Physical Research NAS, Ashtarak, Armenia*

27	**Effects of UV Irradiation on the Electrical and Optical Properties of Ag-doped ZnO Films** ***A. Sarkisian, N. Aghamalyan, A. Arakelyan, R. Hovsepyan, M. Nersisyan, S. Petrosyan, A. Poghosyan, I. Gambaryan, G. Badalyan, Y. Kafadaryan*** *Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia*
28	**Application of Metal Nanoparticles with Localized Surface Plasmon Resonances for Luminol Chemiluminescence Enhancement** ***S.V. Pinamyan[1], T.A. Vartanyan[2]*** *[1]YSU, "Quanta" Master's Degree Program in Quantum and Mesoscopic Physics, Armenia* *[2]IR&EC PhysNano, ITMO University, St. Petersburg, Russia*
29	**Analytical Solutions of the Grad–Shafranov Equation via Fourier–Bessel and Special Function Methods for Axisymmetric Plasma Confinement** ***C. Cesarano[1], S. F. Hashemi[1]*** *[1]Section of Mathematics, International Telematic University UNINETTUNO, Rome, Italy*
30	**Optical Characterization of Atmospheric Aerosols Using a Calitoo Sun-Photometer** ***E. Nozaripak, A. Bayat, G. Moghadam*** *Department of Physics, University of Zanjan, Zanjan, Iran*
31	**Laser Post-Treatment of 316L Stainless Steel Produced by Selective Laser Melting** ***M. Salhab, S. A. Kvashnina, V. A. Parfenov, I. I. Mikhailov*** *St. Petersburg Electrotechnical University "LETI", Saint Petersburg, Russia*
32	**Cd1–xZnxWO4 Solid Solutions: Structure and Luminescence** ***N. Krutyak, L. Dolgov, D. Spassky*** *Institute of Physics, Tartu University, Tartu, Estonia*
33	**Magnetically Induced Transparency, Absorption, and Dispersion Characteristics of a Rb-87 Medium in a J-Type Configuration for Weak Magnetic Field Measurement** ***H. Gevorgyan[1,2]*** *[1]A. I. Alikhanyan National Science Laboratory (Yerevan Physics Institute), Yerevan, Armenia* *[2]Institute for Physical Research, Armenian National Academy of Sciences, Ashtarak, Armenia*
34	**A Quadratic Transformation Identity for the Confluent Heun Function Involving Three Arbitrary Parameters** ***T.A. Ishkhanyan[1], G.A. Petrosyan[1], A.M. Ishkhanyan[1]*** *[1]Institute for Physical Research, NAS of Armenia, Ashtarak, Armenia*
35	**Strong Confinement of a Nanoparticle in a Needle Paul Trap: Towards Matter-Wave Interferometry with Massive Objects** ***Peter Skakunenko[1], Daniel Folman[1], Yaniv Bar-Haim[1], and Ron Folman[1]*** *[1]Ben-Gurion University of the Negev, Beer-Sheva, Israel*

IMPORTANT INFORMATION

Yerevan-Ashtarak-Yerevan bus operation for foreign participants during conference days

On September 16, the first-day sessions will be held in the Round Hall of the National Academy of Sciences of Armenia, located at 24 Marshal Baghramyan Avenue, Yerevan.

On the subsequent days of the Conference, the bus will depart from the National Academy of Sciences building (a 3-minute walk from the Marshal Baghramyan Metro Station) to the Institute for Physical Research (Ashtarak):

Bus Schedule – September 17, 18, and 19

- **Departure Time:** 9:00 AM
- **Departure Location:** National Academy of Sciences building
- **Trip Duration:** Approximately 30 minutes (Yerevan to the Institute for Physical Research, Ashtarak)

Return Trips from IPR (Ashtarak) to Yerevan will be planned in accordance with the Conference Program.

The regular Institute bus (20 seats) will operate round-trip between Yerevan and Ashtarak. It will serve the IPR staff and Conference participants from different Armenian scientific organizations and Universities, running on a **regular schedule** throughout the conference days.

The bus will depart from France Square in the center of Yerevan at 8:30 and return from IPR (Ashtarak) to Yerevan at 17:00.

PLENARY SPEAKERS

Sile Nic Chormaic
OIST Graduate University
Okinawa, Japan

Thomas Busch
OIST Graduate University
Okinawa, Japan

David Pertrosyan

IESL/FORTH, Greece

Pavlos Savvidis

Westlake University, China

Riccardo Cicchi

INO, CNR, Florence, Italy

Tigran Vartanyan

ITMO University, St. Petersburg, RF

TOUR ON SEPTEMBER 20, 2025

Ararat and Vayots Dzor regions, Khor Virap and Noravank Monasteries, Areni Bird's cave, and Areni Village for Wine Tasting: With transport and English-speaking guide. Tour duration is 8 hours. The tour starts at 10:00 from the NAS of Armenia building, with a return to the city center. Price: 15.000-20.000 Armenian drams, including wine tasting and lunch along the route.

Payment will be made to the tour agency in place.

We travel south through Ararat Valley to the legendary Khor Virap. In this dungeon, St. Gregory the Illuminator was jailed for thirteen years before converting Armenia into the world's first Christian nation in 301 AD.

Noravank is a 13th-century Armenian monastery, located 122 km from Yerevan in a narrow gorge made by the Amaghu River. The gorge is renowned for its towering, sheer, brick-red cliffs, situated directly across from the monastery.

The monastery is best known for its two-storey Surb Astvatsatsin (Holy Mother of God) Church, which grants access to the second floor via a narrow stone staircase jutting out from the face of the building.

Areni-1 Bird's cave is located in the Vayots Dzor province of Armenia. Excavations in the same area also uncovered the world's oldest known wine-making site and a 5,500-year-old leather shoe, discovered in 2008.

We make a stop in the famous Areni village, where we can taste the finest Armenian wines.