TIM 25 Physics Conference – Program

Thursday, 29th of May 2025 Aula Magna of the West University of Timisoara	
13:00 – 14:00	Participants Registration Desk Open – in front of Aula Magna
14:00 – 14:20	Opening Ceremony

Plenary Session 1 Aula Magna of the West University of Timisoara *Chairmen:Marius Stef / Daniel Vizman*		
14:20 – 15:00	**PL-01**	**EXTREME LIGHT INFRASTRUCTURE – NUCLEAR PHYSICS STATUS UPDATE** For the ELI-NP team Ioan Dancus
15:00 – 15:40	**PL-02**	**PHYSICS-INFORMED NEURAL NETWORKS FOR PDES: A SURVEY FROM DIGITAL TO PHOTONIC APPROACHES** Péter Kovács
15:40 – 16:00	Coffee Break	
16:00 – 16:40	**PL-03**	**MODELING LASER-DRIVEN TRANSIENT PHASE OSCILLATIONS OBSERVED BY ULTRAFAST TEM** Laurenţiu Stoleriu and Denisa Colţuneac
16:40 – 17:20	**PL-04**	**LUMINESCENCE AND FARADAY ROTATION PROPERTIES OF TB_2O_3 AND $TB:Y_2O_3$ SINGLE CRYSTALS** Philippe Veber, Grégory Gadret, Yannick Guyot, Gabriel Buşe, Richard Moncorgé and Matias Velázquez

17:30 – 18:30	Poster Session 1 – Faculty of Physics 2nd Floor **API P01- API P28**
19:00	Welcome party – Faculty of Physics 1st Floor

Friday, 30th of May 2025 **A01 - West University of Timisoara**	
09:00 – 10:00	Participants Registration Desk Open – in front of A01

Plenary Session 2 **A01 - West University of Timisoara** *Chairmen: Michal Piasecki / Laurențiu Stoleriu*		
10:00 – 10:40	**PL-05**	**RECOMMENDER SYSTEM FOR DISCOVERY OF NEW INORGANIC COMPOUNDS** Isao TANAKA
10:40 – 11:20	**PL-06**	**EXPLORING THE QUARK–GLUON PLASMA WITH ALICE** Alexandru Florin Dobrin (for the ALICE Collaboration)
11:20 – 11:40	Coffee Break	
11:40 – 12:20	**PL-07**	**SKYRMIONIC QUBITS AS PLATFORMS FOR QUANTUM GATES** Coriolan V. Tiusan, Doru Sticlet
12:20 – 13:00	**PL-08**	**A PERSPECTIVE ON MAGNETIC INTERACTIONS IN ASSEMBLIES OF MAGNETIC NANO-OBJECTS** Victor Kuncser

13:00 – 14:30	Lunch Break – ZAZA Restaurant

Oral presentations			
	Room A01 *Chairpersons:* *Victor Ambrus / Pracheta Singha*	**Room F205** *Chairman:* *Matias Velazquez*	**Room F206** *Chairman:* *Isao Tanaka / Catalin Nicolaie Marin*
14:30 – 15:00	TCP – I01 **ARTIFICIAL INTELLIGENCE BASED AUTOMATIC ADAPTIVE QUADRATURE** Gheorghe Adam and Sanda Adam	CMP – I01 **LUMINESCENCE IN FLUORIDE CRYSTALS DOPED WITH $M^{3+,2+}$ OR RE^{3+} IONS: PREDICTIONS FROM DENSITY FUNCTIONAL THEORY STUDY** Alexander Platonenko, Zafari Umar, Andrei Chesnokov, Mikhail Brik, Vladimir Pankratov, Michal Piasecki	API – I01 **ATMOSPHERIC PRESSURE PLASMA AND LIFE SCIENCES: RECENT ADVANCES IN MEDICINE, AGRICULTURE AND BIOENGINEERING** Ionut Topala, Ioana Cristina Gerber, Ilarion Mihaila, Valentin Pohoata

15:00 – 15:30	TCP – I02 **CHIRAL MAGNETIC EFFECT ENHANCEMENT AT LOWER COLLISION ENERGIES** Sebastian Grieninger, Sergio Morales Tejera and Pau G. Romeu	CMP – I02 **DEVELOPMENT OF EFFICIENT UP-CONVERSION OXIDE PHOSPHORS** Tomoki Koikawa, Yuiko Shimazaki, Mikhail G. Brik and Tomoyuki Yamamoto	API – I02 **SMART GROWTH: ARTIFICIAL INTELLIGENCE ENHANCED, SUSTAINABLE GROWTH OF RARE-EARTH MATERIALS BASED LASER** Philippe Veber, Dragos Tatomirescu, Alexandra Popescu, Gabriel Buse, Daniel Vizman, Natasha Dropka
15:30 – 16:00	**TCP Session 1** Oral presentations **TCP-O01 – TCP-O02**	**CMP Session 1** Oral presentations **CMP-O01 – CMP-O02**	**API Session 1** Oral presentations **API-O01 – API-O02**
16:00 – 16:30	Coffee Break		
16:30 – 17:30	**TCP Session 2** Oral presentations **TCP-O03 – TCP-O06**	**CMP Session 2** Oral presentations **CMP-O03 – CMP-O05**	**API Session 2** Oral presentations **API-O03 – API-O09** (16:30 – 18:15)

17:30 – 18:30	**Poster Session 2** – Faculty of Physics 2nd Floor **CMP-P01 - CMP-P06** **TCP-P01 – TCP-P03**
19:00	Conference Dinner – ZAZA Restaurant

Saturday, 31st of May 2025		
Oral presentations		
	Room A01 *Chairman:* *Aritra Bandyopadhyay*	**Room F205** *Chairman:* *Mihail Lungu*
10:00 – 12:00	**TCP Session 3** **Oral presentations** **TCP-O07 – TCP-O14**	**EP Session** **Oral presentations** **EP-O01 – EP-O05** EP – Poster session **EP-P01**
Participants Departure		

Oral Presentations

TCP – Theoretical and Computational Physics	
TCP-O01	**SIGNATURES OF LOCAL ACCELERATION OF QUARK-GLUON PLASMA IN THE DILEPTON PRODUCTION** Victor E Ambruș, Aritra Bandyopadhyay, Maxim N Chernodub and Moulindu Kundu
TCP-O02	**A LATTICE BOLTZMANN MODEL USING THERMAL ENSKOG-VLASOV THEORY TO SIMULATE PHASE SEPARATION** Sergiu Busuioc and Victor Sofonea
TCP-O03	**FIRST-PRINCIPLES CALCULATIONS OF ELECTRONIC PROPERTIES OF OPTICAL MATERIALS** Mikhail G. Brik, M. Piasecki, N.M. Avram
TCP-O04	**COLLECTIVE DYNAMICS IN HEAVY AND LIGHT-ION COLLISIONS** Victor E. Ambruș
TCP-O05	**TWO DIPOLE-DIPOLE INTERACTING EMITTERS IN A LASER FIELD** Alexandr S. Cudreașov and Mihai A. Macovei
TCP-O06	**TOWARDS A COMPACT-TIME STRING COSMOLOGY** Andrei Dogaru
TCP-O07	**FIREWALL BOUNDARIES FOR ROTATING QUARK MATTER IN LINEAR SIGMA MODEL** Victor E. Ambruș, Sergio Morales Tejera, Aleksandar Gecić
TCP-O08	**CRITICAL BEHAVIOR AT THE TRANSITION TO CHAOS IN HAMILTONIAN SYSTEMS** Gabriel Majeri and Virgil Băran
TCP-O09	**SCALE-FREE TO PARETO-TSALLIS TRANSITION IN THE WAITING TIME DISTRIBUTIONS OF ETHEREUM-USDT EXCHANGE RATE** Paul-Adrian Gogîță, Mihaela-Carina Raportaru and Alexandru Nicolin-Żaczek
TCP-O10	**FINITE SPIN DENSITY EFFECTS ON THE CHIRAL PHASE TRANSITION IN THE LINEAR SIGMA MODEL** Pracheta Singha, Victor E. Ambrus, Sergiu Busuioc, Aritra Bandyopadhyay and Maxim N. Chernodub
TCP-O11	**TWO QUBIT SYSTEM IN A THERMAL RESERVOIR** Arthur Rotari and Mihai A. Macovei
TCP-O12	**EARLY UNIVERSE PRODUCTION OF W BOSONS IN NEUTRINO DECAYS** Amalia Dariana Fodor, Cosmin Crucean and Andru Mihai Buga
TCP-O13	**MOTT CRITERION IN II-VI SEMICONDUCTORS** Alexandru Varzari, Alexandr Cliucanov and Sergiu Vatavu
TCP-O14	**ENTROPY CORRECTED GEOMETRIC BROWNIAN MOTION** Dominik Szczesniak

CMP – Condensed Matter Physics	
CMP-O01	**INFRARED SPECTRUM OF BaF_2:ErF_3-YbF_3 CRYSTALS** Emeric. C. C. Kiss, Michal Piasecki, Mikhail Brik, Yaroslav Zhydachevskyy, Andrzej Suchocki, Marius Stef, C. Avram
CMP-O02	**MAGIC GENERATION IN SPIN CHAINS AND RANDOM CIRCUITS** Cătălin Pașcu Moca
CMP-O03	**SEMICLASSICAL ANALYSIS OF SPIN DYNAMICS IN THE NON-HERMITIAN HUBBARD MODEL** Doru Sticlet
CMP-O04	**EVALUATION OF NONLINEAR OPTICAL PROPERTIES OF MATERIALS BASED ON SPECTROSCOPIC DATA ANALYSIS** M. Piasecki, O. Y. Khyzhun, M.G.Brik
CMP-O05	**INTERPLAY BETWEEN SURFACE CHARGE AND SURFACE FERROMAGNETISM: FOUR RECENT EXAMPLES** Cristian Mihail Teodorescu

API – Applied Physics and Interdisciplinary	
API-O01	**CT SIMULATION RECONSTRUCTIONS AND THEIR IMPLICATION IN RADIOTHERAPY** Mihai – Stefan Barhala, Tia Popescu
API-O02	**STABILITY OR INSTABILITY OF A STATIC MENISCUS APPEARING IN RIBBON SINGLE CRYSTAL GROWTH FROM MELT USING E.F.G. METHOD** Andreea V. Cojocaru, Adriana Tanasie, Stefan Balint, Sorina M.D.Laitin,
API-O03	**QUALITY INDEXES MODELING AND EVALUATION FOR ASSESSING THE QUALITY OF SRS/ SRT PLANS** Tia Popescu, Mihai Barhala, Ionut Dumitru
API-O04	**IMPACT OF MAGNETIC FIELD-ASSISTED POLYMERIZATION ON THE ELECTRICAL PROPERTIES OF ELASTOMER-FERROFLUID COMPOSITES** C. N. Marin, I. Malaescu, P. C. Fannin, O. M. Bunoiu, C. Casut, D. D. Darie
API-O05	**DISTINGUISHING ANTHROPOGENIC SIGNALS IN SEISMIC MONITORING OF THE BANAT - DANUBIAN REGION** Adina Rău, Raluca Dinescu, Mircea Radulian, Mihaela Popa, Antoanetta Lungu, Mihail Lungu
API-O06	**Ga, In AND La DOPING OF NICKEL OXIDE: TECHNOLOGY VS PHYSICAL PROPERTIES** Gheorghe Ghileţchii, Igor Narolschi, Petronela Garoi, Oleg Shapoval, Alexandru Belenchuk, Oleg Palamarciuc, Valentin Ion, Valentin Craciun, Elmira Vatavu, Antoniu Moldovan, Ștefan-Andrei Irimiciuc, Sergiu Vatavu
API-O07	**LOAD MODELING FOR MULTI-GENERATOR DISPATCH AND PROTECTION IN URBAN NETWORKS USING A FRACTAL DISPATCH MODEL** Ovidiu Postelnicu, Dragos Bordescu, Emil Cazacu
API-O08	**TELLURITE GLASSES FOR TEMPERATURE SENSING** R. Yatskiv, P. Kostka, J. Grym, J. Zavadil

API-O09	**COMPARATIVE STUDY BETWEEN SEPIOLITE AND Mg_3Al-LAYERED DOUBLE HYDROXIDE AS CLAY-BASED MATERIALS USED IN WATER TREATMENT - A STATISTICAL APPROACH** Marina Alexandra Tudoran, Adina Căta, Nick S. Țolea, Antonina Lazăr, Ioana M.C. Ienașcu and Bogdan-Ovidiu Taranu

EP – Educational Physics	
EP-O01	**INTEGRATING AI-GENERATED ASSESSMENTS IN SCIENCE COMPETITIONS: A CASE STUDY** Izabella J. Benczik and Emese Hanolné Toldy
EP-O02	**THE PLANETARIUM OF THE PHYSICS DEPARTMENT OF THE WEST UNIVERSITY OF TIMIȘOARA** Secoșan Florin
EP-O03	**HIGH-ENERGY PHYSICS - NATIONAL MASTER PROGRAMME** Călin Alexa, Paul Grăvilă, Lázár Zsolt Iosif, Daniel Radu, and Roxana Zus
EP-O04	**SCIRESCAREER: FROM PUPILS, TO STUDENTS AND PHYSICS RESEARCHERS** Virgil Băran, Marius L. Matache, Codruța C. Popescu, Andreea Popescu-Cruglic (Ghinescu), Roxana Zus
EP-O05	**STUDENTS' MOTIVATION AND THEIR MISCONCEPTIONS IN STUDYING QUANTUM MECHANICS** Andreea Popescu-Cruglic (Ghinescu), Virgil Băran, Andreea-Mihaela Croitoru, Roxana Zus

Poster Presentations

TCP – Theoretical and Computational Physics	
TCP-P01	**THE HYBRID COSMOLOGY IN THE SCALAR-TENSOR REPRESENTATION OF F(G,T) GRAVITY** Adam Zenon Kaczmarek and Dominik Szczęśniakr
TCP-P02	**BORN RATE EQUIVALENCE FOR THE KINETIC THEORY AND QUANTUM FIELD THEORY APPROACH** Moulindu Kundu, Victor E Ambruș and Aritra Bandyopadhyay
TCP-P03	**THERMAL GRADIENT OPTIMISATION THROUGH NUMERICAL MODELING FOR OPTIMAL GROWTH OF DOUBLE DOPED SESQUIOXIDES (Y_2O_3, Gd_2O_3, Lu_2O_3) CRYSTALS USING THE CZOCHRALSKI METHOD** Dragos Tatomirescu, Philippe Veber, Alexandra Popescu, Maximilian Mangra, Tiana Ile, Kesavan Venkatachalam and Daniel Vizman

CMP – Condensed Matter Physics	
CMP-P01	**EFFECT OF PROCESS PARAMETERS ON THE PROPERTIES OF YTTRIUM OXIDE CERAMICS** Vasilica Țucureanu, Oana Brâncoveanu, Cosmin Romanițan, Iuliana Mihalache, Alina Matei
CMP-P02	**IMPACT OF RAPID THERMAL ANNEALING UNDER VARIOUS TEMPERATURES ON THE YTTRIUM OXIDE NANOPARTICLES** Alina Matei, Oana Brîncoveanu, Cosmin Romaniţan, Cristina Pachiu, Vasilica Ţucureanu
CMP-P03	**INTERACTIONS BETWEEN GLASS MATRICES AND RARE-EARTH IONS: ENERGY TRANSFER PATHWAYS** Petr Kostka, Roman Yatskiv, Jiri Zavadil, Olga Prochazkova, Petar Gladkov, Stanislav Tiagulskyi
CMP-P04	**SPECTROSCOPIC ANALYSIS OF X-RAY INDUCED VALENCE CHANGES IN TM-DOPED CAF_2 CRYSTALS** Carla Schornig, Marius Ștef, Philippe Veber, Daniel Vizman, Maria Poienar and Gabriel Buşe
CMP-P05	**MACHINE LEARNING MODEL FOR PREDICTING INTERATOMIC DISTANCES IN A_2O_3 OXIDES AND CORRELATIONS WITH STARK SPLITTING OF LANTANIDE DOPANT ENERGY LEVELS** A. V. Racu, G. Dima, M-G. Ivanovici, D. Vizman, M. Buryi, T. Yamamoto, M. G. Brik
CMP-P06	**MACHINE LEARNING-BASED PREDICTION OF 5D-LEVEL ABSORPTION OF Pr^{3+} IN ABO_3 OXIDES** G. Dima, A. V. Racu, R. Bucur, M. Iorga, Z. Antić, M. Buryi, M.D. Dramićanin, M. G. Brik

API – Applied Physics and Interdisciplinary	
API-P01	**GUIDING CURVES FOR H-LIKE ATOMIC ORBITALS** Diana R. Radnef-Constantin, Sorin S. Radnef and Valentin I. Niculescu
API-P02	**PHASE TRANSITION OF PLASMA CRYSTALS INDUCES BY AN ELECTRON BEAM** Beatrice Paraschiv, Dorina Ticoș, Nicoleta Udrea, Maria Luiza Mitu, Adrian Scurtu, Mihai Oane, Catalin M. Ticoș
API-P03	**MEASURED SPECTRAL CHARACTERISTICS OF DIRECT NORMAL IRRADIANCE IN TIMISOARA, ROMANIA** Sergiu-Mihai Hategan, Marius Paulescu
API-P04	**SYMMETRICAL VORTICES AND LAMINAR DUST FLOW INDUCED BY AN ELECTRON BEAM IN STRONGLY COUPLED DUSTY PLASMA** D. Ticos, A. Scurtu, M.L. Mitu, N. Udrea, M. Oane, J. Williams, C.M. Ticos
API-P05	**MACHINE LEARNING FOR A DUST CLUSTER ROTATION UNDER THE INFLUENCE OF AN ELECTRON BEAM** M.L. Mitu, D. Ticoș, N. Udrea, A. Scurtu, B. Paraschiv, C.M. Ticoș
API-P06	**CYLINDRICAL PARTICLES LEVITATED IN LOW MAGNETIC FIELD PLASMA** N. Udrea, M.L. Mitu, P. Beatrice, D. Ticoș, A. Scurtu, C.M. Ticoș
API-P07	**IMPACT OF INFERRING ATMOSPHERIC PARAMETERS ON SOLAR IRRADIANCE ESTIMATION** Jordan Ciucea, Andreea Sabadus and Marius Paulescu
API-P08	**EFFECTS OF HEADSPACE PRESSURE ON THE LEACHED BED REACTOR METABOLITE, HYDROGEN AND METHANE YIELD DURING TWO STAGE ANAEROBIC DIGESTION OF KITCHEN WASTE** Debkumar Chakraborty, Gorakhanath Jadhav, Anil Dhanda, Makarand Ghangrekar, Abhishek Pitta, Ionel Balcu, Corina Macarie, Paula Sfirloaga, Narcis Duteanu
API-P09	**ALTITUDE ADJUSTMENT OF EMPIRICAL MODELS FOR ESTIMATING CLEAR-SKY SOLAR IRRADIANCE** Anamaria-Giulia Goilean, Eugenia Paulescu, Marius Paulescu
API-P10	**INFLUENCE OF ATMOSPHERIC PARAMETERS ON BIOLOGICALLY EFFECTIVE SOLAR UV IRRADIANCE** Andrea-Florina Codrean, Marius Paulescu
API-P11	**HARNESSING HIGH-DENSITY PULSED PLASMA FOR SUSTAINED OXYGEN SUPPLY ON MARS** Adrian Scurtu, Dorina Ticoș, Constantin Diplașu, Nicoleta Udrea, Maria Luiza Mitu, Beatrice Paraschiv, Cătalin M. Ticoș
API-P12	**ENHANCED DIELECTRICS IN FLEXIBLE PEROVSKITE COMPOSITES** Cătălin Nicolae Marin, Daniel Ursu, Marinela Miclău, Iosif Mălăescu, Cristian Casut
API-P13	**IMPROVING DYE-SOLAR CELL EFFICIENCY VIA TIO2 PASTE BALL-MILLING** Daniel Ursu, Melinda Vajda, Cristina Mosoarca, Marinela Miclau, Cristian Casut
API-P14	**SMARTPHONE DETECTABLE COLOR DEPENDENT TIME RESPONSES OF STRONTIUM ALUMINATES PHOSPHORS** T.Eftimov, V.Vitola, K.Krizmane, G K.Nikolov and S.Fouzar

API-P15	**MICROBIOLOGICAL EVALUATION OF THE BACTERICIDAL POTENTIAL OF $Y_2SiO_5:Pr^{3+}$ AND DERIVED POLYMER COMPOSITES** Cristina Moșoarcă, Radu Bănică, Miroslav D. Dramićanin, Željka Antić, Mirela I. Iorga
API-P16	**COMPARATIVE STUDY OF YBO_3 PREPARED BY COMBUSTION AND SOLID-STATE METHODS** Radu Banică, Cristina Moșoarcă, Miroslav D. Dramićanin, Željka Antić, Mirela I. Iorga, Mihai-Petru Marghitas
API-P17	**CRYSTAL GROWTH OF RARE EARTH SESQUIOXIDES** Maximilian Mangra, Kesavan Venkatachalam, Tiana Ile, Gabriel Buse, Daniel Vizman, Philippe Veber
API-P18	**CHARACTERIZATION OF MATRICEAL PROTEINS IN THE SHELL OF MARINE RAPANA SNAILS** M.C. Belc, I.M.Stanescu
API-P19	**IRON OXIDE MICROFIBERS: MANUFACTURING, CHARACTERIZATION AND APPLICATIONS** Madalin Bunoiu, Liviu Chirigiu, Eugen Anitas, Gabriel Pascu and Ioan Bica
API-P20	**A PARAMETRIC MODEL FOR ESTIMATING SOLAR ENERGY FLUX UNDER CLEAR-SKY CONDITIONS** Viviana Sîrbu and Eugenia Paulescu
API-P21	**DYNAMIC XENON RESPONSE IN A CANDU-600 REACTOR: A SIMULATION STUDY OF POWER VARIATIONS** Andrei Stan and Geoșchun Ferat
API-P22	**STRUCTURAL AND PHOTOPHYSICAL PROPERTIES OF THE 1-HYDROXYXANTHONE MOLECULE** Stefania Stepanov, Ioana Andreea Scutelnicu, Maria Bischin, Elena Bogdan, Monica Focșan, João P. Prates Ramalho, Vasile Chiș
API-P23	**POLARIMETRIC MAGNETIC FIELD SENSOR BASED ON MAGNETO-OPTIC GLASS WITH SMARTPHONE DETECTION** K.Nikolov, E. Dinkov, T.Eftimov, G.Dyankov and S.Fouzar
API-P24	**ELECTRICAL AND DIELECTRIC PROPERTIES OF BARIUM VANADATE GLASSES WITH ZnO, TiO_2 AND NiO** Ondrej Bošák, Marian Kubliha, Tina Tasheva, Petr Kostka,Stanislav Minárik
API-P25	**CORRECTION FACTOR FOR FOUR-PROBE ELECTRICAL MESUREMENT: CASE OF MULTI-LAYER DIELECTRIC STRUCTURES** Marian Kubliha, Ondrej Bošák, Vladimír Labaš, Tina Tasheva, Stanislav Minárik
API-P26	**THE COLD ATMOSPHERIC PLASMA: A CROSS-APPROACH TO SOIL HEALTH MANAGEMENT** Adriana-Florica Bogosel, Mihail Lungu and Antoanetta Lungu
API-P27	**THE WATER-SPLITTING ELECTROCATALYTIC ACTIVITY OF ELECTRODES MODIFIED WITH A MIXTURE OF Co-DOPED PEROVSKITE AND A SYMMETRICALLY SUBSTITUTED FREE-BASE PORPHYRIN** Bogdan-Ovidiu Taranu, Paula Sfirloaga and Marina Alexandra Tudoran

API-P28	**SINGLE CRYSTALS FOR MAGNETO-OPTICAL APPLICATIONS IN UV-VIS-NIR** Kesavan Venkatachalam, Maximilian Mangra, Gabriel Buse, Daniel Vizman, Philippe Veber and Matias Velazquez

EP – Educational Physics	
EP-P01	**MODELING OF EXPERIMENTS AND PHYSICAL PHENOMENA STUDYED IN HIGH SCHOOL USING DIFFERENT SOFTWARE** Antoanetta Corina Lungu, Mihail Lungu and Adriana-Florica Bogosel

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