

WORKSHOP ON CURRENT PROBLEMS IN PHYSICS: ZIELONA GÓRA - LVIV

Zielona Góra, Poland, October 24-27, 2022

Tuesday, October 25, 2022

Building A-29, Lecture room 106

8.30 – 9.00 REGISTRATION

Session I

Chairman: Z. Ficek

9.00 – 9.10 OPENING CEREMONY

9.10 – 9.45 V. TKACHUK (Keynote speaker)

Studies of the spin-1 tunneling on IBM's quantum computer

9.45 – 10.20 W. LEOŃSKI (Keynote speaker)

Quantum steering transfer along two non-interacting qubit chains

10.20 – 10.40 Y. YAREMKO

Radiation reaction in de Sitter space

10.40 – 11.00 S. KONDEJ

Quantum systems with wires in R^3

Coffee Break

Session II

Chairman: V. Tkachuk

11.30 – 12.05 J. KŘÍŽ (Keynote speaker)

Bound states in soft quantum waveguides and layers

12.05 – 12.25 A. KOWALEWSKA-KUDŁASZYK

Photon blockades in optical and hybrid opto-mechanical systems

12.25 – 12.45 E. LANGE

Tuning unconventional photon blockade in a nonlinear rotation-time-symmetric system

12.45 – 13.05 P. TULEWICZ

Synergic generative quantum machine learning

Lunch Break

Session III

Chairman: J. Kríž

- 14.45 – 15.20 KH. GNATENKO (Keynote speaker)
Quantifying of graph properties on a quantum computer
- 15.20 – 15.55 G. CHIMCZAK (Keynote speaker)
Towards quantum computing based on systems with optical cavities
- 15.55 – 16.15 N. A. SUSULOVSKA
Quantum Computations of the Geometric Measure of Entanglement of Multi-qubit Graph States
- 16.15 – 16.50 B. V. PADLYAK (Keynote speaker)
Local structure and spectroscopic properties of the Cu-doped lead-silicate glass with complex composition

19:00 *Conference Dinner*
Ruben Hotel, Aleja Konstytucji 3 Maja 1a Street

Wednesday, October 26, 2022

Building A-29, Lecture room 106

Session IV

Chairman: Y. Yaremko

- 9.00 – 9.35 M. PRZYBYLSKA (Keynote speaker)
Non-integrability of relativistic homogeneous potentia
- 9.35 – 10.10 P. ROZMEJ (Keynote speaker)
The only valid (2+1)-dimensional KdV, Kadomtsev-Petviashvili, fifth-order KdV, and Gardner equations derived from the ideal fluid model
- 10.10 – 10.30 K. URBANOWSKI
A universe born in a metastable false vacuum state may survive until late and not die
- 10.30 – 10.50 A. GRONOWSKA-KOWALSKA
Two q-bit system state classification
- 10.50 – 11.10 W. SZUMIŃSKI
Double swinging Atwood's machine – from hyperchaos to super-integrability

Coffee Break

Session V

Chairman: M. Przybylska

- 11.40 – 12.15 M. DUDEK (Keynote speaker)
Thin films with magnetic nanoparticles as magnetocaloric materials
- 12.15 – 12.35 S. MUDRY
Inhomogeneous metallic liquids: experimental studies and model description
- 12.35 – 12.55 M. MARĆ
Preparation methods of magnetic nanoparticle layers
- 12.55 – 13.15 M. KOSTRZEWA
Possibility of obtaining the room-temperature superconductors among hydrogen-rich compounds

Lunch Break

Session VI

Chairman: M. Dudek

- 14.45 – 15.05 K. DUDEK
Magnetically-controlled magneto-mechanical metamaterials
- 15.05 – 15.25 A. DRZEWIŃSKI
An aqueous suspension of magnetic nanoparticles: magnetic heating vs. ultrasonic treatment
- 15.25 – 15.45 W. WOLAK
Nanoparticles' aqueous solution stability for different pH values and salt concentrations
- 15.45 – 16.05 D. N. TRONG
Effect of shape and matrix size of thin film on the mechanical properties of 2D epoxy thin film by the Monte Carlo simulation method

Online Sesion

Chairman: S. Mudry

- 16.15 – 16.35 I. KINDRAT
Optical-luminescent and structural properties of the Pb-containing germanate and silicate oxyfluoride glasses
- 16.35 – 16.55 A. DUVIRYAK
Spindown of nanoparticles under the radiation reaction torque
- 16.55 – 17.15 B. AHMADI
Catalysis in Charging Quantum Batteries
- 17.15 – 17.35 A. R. KUZMAK
Entanglement in the rhombic spin cluster
- 17.35 – 17.55 Y. V. KALYUZHNYI
Empty liquid state and re-entrant phase behavior of the patchy colloids confined in porous media