

# WORKSHOP ON CURRENT PROBLEMS IN PHYSICS: ZIELONA GÓRA - LVIV

Zielona Góra, Poland, October 16-19, 2017

Tuesday, October 17, 2017

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8.30–8.50 REGISTRATION

*Morning session*

*Chairman: Piotr Rozmej*

8.50–9.00 OPENING ADDRESS

9.00–9.40 PAVEL EXNER (Prague, Czech Republic): **Coupling constant triggered spectral transitions**

9.40–10.20 YURIJ YAREMKO (Lviv, Ukraine): **Quantum supersymmetry harmonic oscillator in a Penning trap**

10.20–10.50 KHRYSTYNA P. GNATENKO (Lviv, Ukraine): **Parameters of noncommutativity in noncommutative phase space**

*Coffee Break*

*Chairman: Maria Przybylska*

11.20–12.00 PIOTR ROZMEJ (Zielona Góra, Poland): **New exact analytic solutions to the extended KdV equation**

12.00–12.40 ARTUR SERGYEYEV (Opava, Czech Republic): **Symmetries and conservation laws for the Karczewska-Rozmej-Rutkowski-Infeld equation**

12.40–14.00 *Lunch*

*Afternoon session*

*Chairman: Yuriy Yaremko*

14.00–14.20 JOANNA K. KALAGA (Zielona Góra, Poland): **Quantum steering and other correlations in a three-qubit systems**

14.20–14.40 ARTUR BARASIŃSKI (Zielona Góra, Poland): **Tripartite probabilistic quantum teleportation in the presence of noise**

14.40–15.00 MATEUSZ NOWOTARSKI (Zielona Góra, Poland): **Entanglement properties of highly symmetric qudit states**

15.00–15.20 ANDRIJ R. KUZMAK (Lviv, Ukraine): **Preparation of quantum gates on two spin-1/2 particles**

*Coffee break*

*Chairman: Krzysztof Urbanowski*

15.50–16.10 GRZEGORZ CHIMCZAK (Poznań, Poland): **State mapping between two cavity modes with wavelength conversion**

16.10–16.30 WOJCIECH SZUMIŃSKI (Zielona Góra, Poland): **Integrability analysis of the chaotic and hyperchaotic financial models**

16.30–17.00 BOHDAN V. PADLYAK (Zielona Góra, Poland): **Spectroscopy and luminescence of borate glasses, co-doped with Gd and Ag**

**18.30 Dinner** at Ruben Hotel, Aleja Konstytucji 3 Maja 1a Street

**Wednesday, October 18, 2017**

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*Morning session*

*Chairman: Pavel Exner*

- 9.00–9.40 MAREK SZYDŁOWSKI (Kraków, Poland): **Nonlinear mechanics of cosmological models**
- 9.40–10.10 KRZYSZTOF URBANOWSKI (Zielona Góra, Poland): **Quantum face of decay processes: Unstable systems in rest and in motion**
- 10.10–10.40 ANDRIJ ROVENCHAK (Lviv, Ukraine): **Telling apart *Felidae* and *Ursidae* from the distribution of nucleotides in mitochondrial DNA**

*Coffee break*

*Chairman: Artur Sergyeyev*

- 11.10–11.40 SYLWIA KONDEJ (Zielona Góra, Poland): **Quantum layers with resonators**
- 11.40–12.00 VOLODYA PASTUKHOV (Lviv, Ukraine): **Impurity states in the one-dimensional Bose gas**
- 12.00–12.20 GALYNA PANOCHKO (Lviv, Ukraine): **Self-energy of the Bose polaron**
- 12.20–13.50 *Lunch*

*Afternoon session*

*Chairman: Andrij Rovenchak*

- 13.50–14:20 DANUTA STEFAŃSKA (Poznań, Poland): **Diode laser optical pumping of a tunable single-mode dye laser**
- 14.20–14.50 MYKOŁA M. STETSKO (Lviv, Ukraine): **Thermodynamics of a slowly rotating Einstein-Maxwell-dilaton black hole**
- 14.50–15.10 KAROLINA ROŻKO (Zielona Góra, Poland): **Two cases of GPS pulsars: J1740+1000 and B1800-21**
- 15.10–15.30 ALEXANDROS FILOTHODOROS (Zielona Góra, Poland): **Analysis of the spectral Variability of Cyg X-1 using INTEGRAL data**

*Coffee break*

*Chairman: Marek Szydłowski*

- 16.00–16.20 PIOTR JACHIMOWICZ (Zielona Góra, Poland): **Pyramid-shaped heavy and super-heavy nuclei?**
- 16.20–16.40 OLGA KORALEWSKA (Zielona Góra, Poland): **Thermal absorption in the pulsar radio spectra: the case of the binary system B1259-63/LS 2883**
- 16.40–17.00 DAGMARA SZTOLBERG (Zielona Góra, Poland): **Spectroscopic properties of chromium-doped LaAlO<sub>3</sub> nanocrystals**
- 17.00–17.20 IHOR I. KINDRAT (Zielona Góra, Poland): **Spectroscopic properties and quantum efficiency of the Eu-doped borate glasses**
- 17.20 CLOSING