

The 25th Student Conference
"Winter School on Mathematical Physics"

The Department of Physics and the Doppler Institute of the Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague together with the Department of Mathematics and Informatics, University of Białystok organized the international student conference for undergraduate and graduate students in Janské Lázně (Krkonoše Mountains) from January 24 to January 30, 2016.

The aim of the conference was to provide students a unique opportunity to present results of their research work in front of an international audience. This opportunity to present a talk in the English language contributed to the improvement of communication skills of each student. There were 33 participants from the University of Białystok (Poland) (7), Comenius University in Bratislava (4) and the Czech Technical University in Prague (22).

Topics of the presentations were related to several fields of contemporary mathematical physics — see Book of abstracts <http://kmlinux.fjfi.cvut.cz/ambrop1/wsmf/history/2016-proc.pdf>. The program comprised five blocks and each consisted of up to five lectures. The detailed program is included below. The setting of spa Janské Lázně enriched the overall informal atmosphere of this fruitful meeting.

Prague February 2, 2016

David Břeň, Jiří Hrivnák and Petr Novotný
on behalf of the Organizing Committee

Monday, January 25

Morning session

Chairperson: G. Chadzitaskos

- 09:00 – 09:50 **Daniel Vašata**
Entropic uncertainty relations
- 10:00 – 10:30 **Michal Jex**
Toy Models with Singular Interactions in 1D
- 10:35 – 11:05 **Martin Malachov**
Permutation, Pauli and Hadamard matrices as modification for chaotic behaviour in entanglement purification
- 11:05 – 11:25 *Intermission*
- 11:25 – 11:55 **Lenka Motlochová**
Fundamental domain of extended affine Weyl group
- 12:00 – 12:30 **Josef Navrátil**
Reaction-diffusion systems with non-differentiable nonlinearities

Tuesday, January 26

Morning session

Chairperson: L. Hlavatý

- 09:00 – 09:50 **Aneta Slizewska**
Introduction to inverse semigroups theory
- 10:00 – 10:30 **Martyna Żuk**
Wagner representation theorem
- 10:35 – 11:05 **Jiří Maryška**
Asymptotic properties of quantum markov processes
- 11:05 – 11:25 *Intermission*
- 11:25 – 11:55 **Stanislav Skoupý**
Quantum walks and their use in search algorithm and quantum communication
- 12:00 – 12:30 **Daniel Gromada**
Construction of realizations of Lie algebras

Afternoon session

Chairperson: P. Bóna

- 15:00 – 15:50 **Michal Širaň**
Lie's Third Theorem for L_∞ -algebroids
- 16:00 – 16:30 **Adam Brus**
Basics of Orthogonal Polynomials
- 16:40 – 17:10 **Iveta Semorádová**
Time-dependent metrics in crypto-Hermitian quantum mechanics

Wednesday, January 27

excursions, skiing

Thursday, January 28

Morning session

Chairperson: M. Fecko

- 09:00 – 09:50 **Petr Novotný**
Concepts of stability, stability of rotating free rigid body
- 10:00 – 10:30 **Jaroslav Kysela**
Equilibration in Quantum Networks
- 10:35 – 11:05 **Zuzanna Sztabińska**
Kummer shape algebra
- 11:05 – 11:25 *Intermission*
- 11:25 – 11:55 **Elwira Wawreniuk**
Quantum Kummer shape algebra
- 12:00 – 12:30 **Krzysztof Bardadyn**
Poincaré method in linear perturbation theory

Friday, January 29

Morning session

Chairperson: A. Odziejewicz

- 09:00 – 09:50 **Marián Fecko**
Surfaces which behave like vortex lines
- 10:00 – 10:30 **Helena Kolečová**
Neutrino oscillations and masses
- 10:35 – 11:05 **Mária Šubjaková**
Gaussian optics from linear
- 11:05 – 11:25 *Intermission*
- 11:25 – 11:55 **Václav Zatloukal**
Electrodynamics with geometric calculus
- 12:00 – 12:30 **Josef Schmidt**
Isaacson's high frequency limit