

First Annual Meeting of Kazakh Physical Society

10-13 October 2018, Nazarbayev University, Astana



Scientific Program

Chair: Prof. T. A. Kozhamkulov, President of KPS
Co-Chairs: Prof. K. A. Baigarin, Head of Astana Branch of KPS,
Nazarbayev University
Prof. T. S. Ramazanov, Vice-President of KPS, Al Farabi University

Scientific Program Committee:

KazNU: T. A. Kozhamkulov, T. S. Ramazanov, A. E. Davletov,
M. E. Abishev; **NU:** K. A. Baigarin, A. Nurmukhanbetova,
Z. Utegulov, A. Tikhonov, A. Desyatnikov, A. Bountis, M. Kaikanov;
ENU: R. Myrzakulov, A. K. Aryngazin, K. S. Zhumadilov,
A. Dauletbekova; **KBTU:** M. T. Gabdullin, **KazNTU:** S. E. Kumekov,
A. T. Mustafin; **KazNPU:** S. K. Sakhiyev, V. N. Kosov;
NNC: E. G. Batyrbekov, M. K. Skakov; **INP:** N. T. Burtebayev,
T. Zholdybayev, M. Zdorovets; **PTI:** T. K. Sadykov;
FAPU: L. M. Chechin; A. Zh. Bibossinov; **II:** V. M. Somsikov;
KSU: N. Ibrayev

Local Organizing Committee:

Astana Branch of KPS
Physics Department, Nazarbayev University
L. N. Gumilyov Eurasian National University

Organizational and financial support

Nazarbayev University
School of Science and Technology

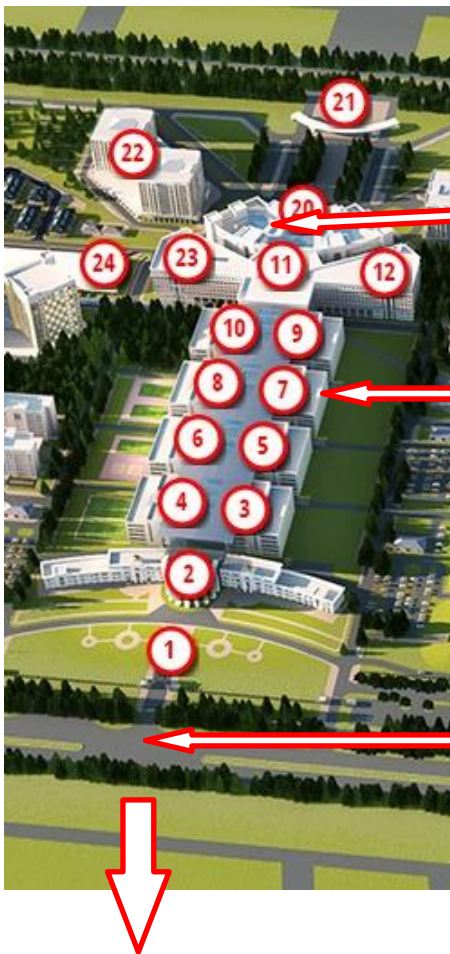
Support team:

Arailym Konysbayeva
Nazira Temirkhanova
Kuralay Baimenova
Gulsina Adamova
Ainura Shakirova

Student volunteers:

Sabina Sagynbayeva
Yegor Polikarpov
Tileubek Uakhitov
Abdybek Urmanov

Venue



Lunch at Kunde Social Cafe, Block C-2

Block 7, Floor 3, **Lecture Hall 7e.329**
School of Science and Technology
All presentations and coffee breaks

Main entrance, 53 Kabanbay Batyr Ave
Please bring your ID card or passport

Shopping mall "Mega Silk Way"

Time	Wednesday 10 October
8:30	Registration
9:00	Annual Meeting Opening Chair K. A. Baigarin , Head of Astana Branch of KPS, Nazarbayev University <i>Opening Remarks</i> by Prof. Ilesanmi Adesida , Provost of Nazarbayev University
9:15	T. A. Kozhamkulov , President of Kazakh Physical Society <i>Kazakh Physical Society problems and perspectives of the development</i>
9:30	General Assembly of Kazakh Physical Society Chair M. Abishev , Scientific Secretary of Kazakh Physical Society
10:00	Coffee break
10:40	<i>Chair: V. Kovanis, Nazarbayev University</i> M. Abishev , Al-Farabi Kazakh National University <i>Nonlinear electrodynamics effects in the strong magnetic field</i>
11:00	A. Bountis , Nazarbayev University <i>Dynamics of Classical Nonlinear Hamiltonian Lattices</i>
11:20	A. E. Davletov , Al-Farabi Kazakh National University <i>Thermodynamics and dust-acoustic wave dispersion in strongly coupled dusty plasmas</i>
11:40	V. Dzhunushaliev , Al-Farabi Kazakh National University <i>Gluon contribution to the proton spin by using the non-perturbative quantization a la Heisenberg</i>
12:00	Lunch and Poster Session
13:40	<i>Chair: A. S. Desyatnikov, Nazarbayev University</i> S. E. Kumekov , Satbayev Kazakh National Technical University <i>Diffuse Spectra of Photoluminescence of Carbon Quantum Dots</i>
14:00	T. M. Inerbaev , L. N. Gumilyov Eurasian National University <i>Non-Equilibrium Charge Dynamics in Functionalized Titania</i>
14:20	Z. N. Utegulov , Nazarbayev University <i>Nanosecond Laser Melting Thresholds in Refractory Metals Detected by Laser Generated Acoustic Shear Waves</i>
14:40	Y. A. Ussenov , Al-Farabi Kazakh National University <i>"Coulomb crystal" experiments under microgravity conditions and diagnostics of complex plasma</i>
15:00	Coffee break
15:40	<i>Chair: S. E. Kumekov, Satbayev Kazakh National Technical University</i> A. B. Tazhen , Al-Farabi Kazakh National University <i>Experimental modeling of dust formation in fusion reactors by pulsed plasma accelerator. Pulsed plasma diagnostics.</i>
16:00	A. Tikhonov , Nazarbayev University <i>Materials surface modification with pulsed ion beam: using the new INURA accelerator facility at Nazarbayev University</i>
16:20	A. I. Fedosimova , Al-Farabi Kazakh National University <i>Fluctuations of secondary particles at development of cascade process in thin calorimeter</i>
16:40	M. U. Khasenov , National Laboratory of Astana <i>Emission and Level Population in Gas Mixtures Pumped by Ionizing Radiation</i>

Time	Thursday 11 October
9:00	<i>Chair: Z. N. Utegulov, Nazarbayev University</i> V. Kovanis, Nazarbayev University <i>Twin Photonic Oscillators as a Unit Cell for the Next Generation of Topological Lasers</i>
9:20	T. S. Ramazanov, Al-Farabi Kazakh National University <i>Dynamical and transport properties of dense plasmas</i>
9:40	K. N. Dzhumagulova, Al-Farabi Kazakh National University <i>Dynamical properties of the dusty plasma in external magnetic field</i>
10:00	Coffee break
10:40	<i>Chair: T. S. Ramazanov, Al-Farabi Kazakh National University</i> E. Batyrbekov, Special presentation by the Director General of the National Nuclear Center of the Republic of Kazakhstan <i>Scientific-Technical Support of the Peaceful Use of Atomic Energy in Kazakhstan</i>
11:00	O. Skrynyk, Ukrainian Hydrometeorological Institute <i>Atmospheric transport, dispersion and deposition of radioactive materials released from nuclear accidents or weapons tests: the case study of the Chernobyl catastrophe</i>
11:20	V. Ju. Maximov, Al-Farabi Kazakh National University <i>The introduction of information and innovative technologies in the energy production processes of existing TPS of the Republic of Kazakhstan in order to address the problems of power engineering and ecology</i>
11:40	M. T. Gabdullin, Kazakh British Technical University <i>Thermodynamic properties of dense non-ideal plasma on the basis of effective potentials of interactions</i>
12:00	Lunch and Poster Session
13:40	<i>Chair: A. S. Desyatnikov, Nazarbayev University</i> V. M. Somsikov, Institute of Ionosphere <i>Deterministic Mechanism of Irreversibility and Physics of Evolution</i>
14:00	Z. Sagidullayeva, L. N. Gumilyov Eurasian National University <i>Integrable spin system and Hirota's method</i>
14:20	Zh. Moldabekov, Al-Farabi Kazakh National University <i>Multiscale approach and computation of dense quantum plasmas</i>
14:40	S. Toktarbay, Al-Farabi Kazakh National University <i>The stability of circular orbits of a test body in the field of two rotating massive bodies</i>
15:00	Coffee break
15:40	<i>Chair: A. E. Davletov, Al-Farabi Kazakh National University</i> A. S. Desyatnikov, Nazarbayev University <i>Paraxial laser beams as versatile tool for modern photonics</i>
16:00	A. Mandilara, Nazarbayev University <i>Quantum compiling with diffusive sets of gates</i>
16:20	M. Lukac, Nazarbayev University <i>Optimal Mapping of Reversible Logic Circuits to Quantum LNN Model</i>
16:40	T. Yakupov, Nazarbayev University <i>Evaluating performance of modern Brillouin light scattering spectrometers</i>

Time	Friday 12 October
9:00	<i>Chair: A. N. Jumabekov, Nazarbayev University</i> A. Dauletbekova, L. N. Gumilyov Eurasian National University <i>Synthesis of ZnO nanocrystals in α-SiO₂/Si ion track templates</i> 9:20 D. G. Batryshev, Al-Farabi Kazakh National University <i>Obtaining of carbon nanomaterials</i> 9:40 S. Kunakov, Al-Farabi Kazakh National University <i>Antineutrino oscillations and energy distributions of fast particles in a fission plasma</i>
10:00	Coffee break
10:40	<i>Chair: A. Tikhonov, Nazarbayev University</i> G. Yar-Mukhamedova, Al-Farabi Kazakh National University <i>Physical Basic of Nano-composition Coatings Obtaining Technology</i> 11:00 D. Sokolov, Al-Farabi Kazakh National University <i>Properties of thin cryovacuum deposition films of organic molecules</i> 11:20 A. Ng, Nazarbayev University <i>A Novel Cryo-controlled Nucleation Method for High Efficiency Perovskite Solar Cells</i> 11:40 A. N. Jumabekov, Nazarbayev University <i>Dipole-field-assisted Charge Extraction in Metal-perovskite-metal Back-contact Solar Cells</i>
12:00	Lunch and Poster Session
13:40	<i>Chair: E. Abdikamalov, Nazarbayev University</i> N. Dadhich, Inter-University Center for Astronomy & Astrophysics, India <i>Understanding General Relativity after 100 years</i> 14:00 V. Dzhunushaliev, Al-Farabi Kazakh National University <i>Modified gravities from the nonperturbative quantization of a metric</i> 14:20 G. Bauyrzhan, L. N. Gumilyov Eurasian National University <i>FRW cosmology of Myrzakulov gravity with a scalar field</i> 14:40 K. Boshkayev, Nazarbayev University <i>Geodesics in the field of a rotating deformed gravitational source</i>
15:00	Coffee break
15:40	<i>Chair: V. Dzhunushaliev, Al-Farabi Kazakh National University</i> B. J. Ahmedov, Ulugh Beg Astronomical Institute, Uzbekistan <i>Optical and energetic properties of black holes</i> 16:00 D. Malafarina, Nazarbayev University <i>Phenomenology of bouncing black holes</i> 16:20 D. Alina, Nazarbayev University <i>Interstellar filaments and interstellar magnetic fields using interstellar dust polarization</i> 16:40 E. Abdikamalov, Nazarbayev University <i>Linear theory of shock-turbulence interaction and its application to stellar explosions</i>

Time	Saturday 13 October
	Special Discussion Session on Nobel Prize 2018
9:00	A. S. Desyatnikov , Nazarbayev University <i>Arthur Ashkin and optical tweezers</i>
9:30	V. Kovanis , Nazarbayev University <i>Compression of Amplified Chirped Optical Pulses</i>
10:00	Coffee break
	<i>Chair: D. Malafarina, Nazarbayev University</i>
10:40	K. Myrzakulov , L. N. Gumilyov Eurasian National University <i>Cosmological model of $f(T,B)$ gravity with fermion fields via Noether symmetry</i>
11:00	N. Myrzakulov , L. N. Gumilyov Eurasian National University <i>$f(R)$ gravity with fermion fields in $(2+1)$ dimensions</i>
11:20	Y. Myrzakulov , L. N. Gumilyov Eurasian National University <i>FRW cosmology of Myrzakulov gravity with f-essence</i>
11:40	P. Tsyba , L. N. Gumilyov Eurasian National University <i>Nonlinear solution in Myrzakulov gravity model</i>
12:00	Closing of the Annual Meeting
12:10	Lunch
14:00 --- 16:00	Bus excursion in Astana city