



**The
International
Conference on
Theoretical
Physics and New
Technologies**

*30th September - 4th October,
SAMARKAND, REPUBLIC OF UZBEKISTAN*

The scientific program of ICTPT-2024

30.09.2024 Monday

9⁰⁰ – 12⁰⁰ – *Conference registration in the lobby of the main building of the Samarkand State University, University Boulevard 15*

10.00 – 11.00 Opening ceremony of the ICTPT 2024 at the Assembly Hall of SamSU

10.00 – 10.10 - *“Introduction and welcome”*

Prof R.I.Halmuradov, Rector of the Samarkand State University

10.10- 11.00 - *“Welcome greetings”*

E.O. Turdimiv, Khokim of the Samarkand Region

V.A. Bagan, Vice-Rector of Moscow Institute of Physics and Technology

A.V. Kavokin, Conference Chairman

Session “Condensed matter and theoretical physics”

Chairman prof. A. Kavokin

11⁰⁰ – 12⁰⁰ *“Scaling theory of the Anderson localization revisited”*

Prof. Boris Altshuler, Columbia University, USA

12⁰⁰ – 13⁰⁰ *“Low-dimensional perovskite nanostructures for optoelectronics”*

Prof. Anvar Zakhidov, University of Texas in Dallas, USA

Group-picture at the entrance of the main building

13⁰⁰ – 14³⁰ Lunch for registered participants at Oasis Garden, Abdurakhmon Zhomiy 59 A

14³⁰ – 19⁰⁰ *Session at the Engineering Physics building of the Samarkand State University*

Session “Light-matter interactions in solids”

Chairman Prof. N.A. Gippius

14³⁰ – 15¹⁰ *“Phenomenological field theory for spin and charge dynamics in diffusive systems with spin-orbit coupling”*

Prof. Ilya Tokatly, Universidad del Pais Vasco, Spain

15¹⁰ – 15⁵⁰ *“Long-range exchange interaction in optics and transport of excitons”*

Prof. Mikhail Glazov, Ioffe Institute, Russian Academy of Sciences, Russia

15⁵⁰ – 16¹⁰ coffee break

16⁰⁰ – 19⁰⁰ – *Poster session at the Conference hall. Local fruits, soft drinks and snacks available*

The list of POSTERS:

- A1. X. Chen. Tamm plasmon resonances in macroporous inverse opal films.
- A2. F.R. Akhmedzhanov. Anisotropy of nonlinear elastic properties in GaAs crystals.
- A3. Anisotropy of nonlinear elastic properties in Cubic crystals
- A4. Attenuation of acoustic waves in lanthanum Gallosilicate crystals
- A5. N.Bunkin. Crystal growth from supersaturated aqueous solutions of salts on polymer substrates.
- A6. L. Djumanov. Intermolecular interactions in liquid nitromethane and its solutions: experimental and theoretical study.
- A7. Z. Ernazarov. The intermolecular interactions in ethyl acetoacetate and its various solutions.

- A8. **B. Eshchanov.** Analysis of the deformation vibration frequencies of chlorobenzene molecules using Raman spectroscopy.
- A9. **G. Eshonqulov.** Post annealing effect on the structural and optical properties of Ga₂O₃ thin films grown by sol-gel method.
- A10. **F. Ismailov.** Investigation of the intensity ratio of the fine structure components of the Rayleigh line in aqueous solutions of a non-electrolyte.
- A11. **U. Juraev.** Relaxation processes in polymers.
- A12. **U. Khujamov.** Exploring the intermolecular interactions between glutamate and water molecules using AIM, ELF and RDG analyses.
- A13. **U. Makhmanov.** One-dimensional nanostructures of fullerenes.
- A14. **G. Murodov.** IR spectroscopic and computational studies of the COCl₂ HCl complex in gas phase.
- A15. **A. Norkulov.** Study of the formation mechanisms of methylglyoxal-benzene complexes using computational methods.
- A16. **M. Salakhitdinova.** Magnetization enhancement of strontium hexaferrite ceramics after irradiation with 5 mEv electrons and ⁶⁰Co gamma-quanta.
- A17. **D. Semenov.** Bulk viscosity and negative dispersion of high-frequency sound velocity in the vicinity of a special point of the state of 4-methylpyridine aqueous solution.
- A18. **N. Turaeva.** Stimulated quasi-chemical atomic rearrangements in non-metals under the influence of high-intensity radiation with a wide energy spectrum.
- A19. **Sh. Yormatov.** The Raman non-coincidence effect of C=O stretching mode of formamide and its dependence on solvent concentration.
- A20. **D. Yusupov.** Efficient Third Harmonic Generation by Two Quadratic Interactions in Quasi-Phase-Matched Crystals.
- A21. **E. Kurtaliev.** Spectroscopic studies of homodimeric styrylcyanine dyes in binary solvents.
- A22. **Sh. Otajonov.** Stationary and dynamical properties of quasi-1D quantum droplets in Bose-Bose mixtures.
- A23. **E. Tsoy.** Dynamics of optical pulses in nonlinear dispersive media.
- A24. **J. Yuldashev.** Dynamical stabilization of two-dimensional vector solitons under nonlinearity management.
- A25. **U. Eshimbetov.** Scattering of quasi-1D quantum droplets with potential barriers and wells.
- A.26. **A. Lelekova.** Plasmonic nanostructures fabricated by an AFM deep-pen lithography.
- A.27. **B. Yavidov.** Estimation of the mass of the 2D polaron in LSCO cuprate.
- A.28. **S.A. Sattarov.** Ring micro-resonator simulation.
- A.29. **A. Absanov.** Halogen bonding in CH₃CN...B (B=Br₂) systems.
- A.30. **R.Kh. Rakhimov.** Impulse tunneling effect

01.10.2024 Tuesday

9⁰⁰ – 18⁰⁰ *Sessions at the Engineering Physics building of the Samarkand State University*

Session “Solid state theory” Chairman Prof. M.M. Glazov

- 9⁰⁰ – 9⁴⁰ *“Fluctuating Local Field method: capturing collective effects in correlated systems”*
Prof. Alexey Rubtsov, MIPT& Moscow State University, Russia
- 9⁴⁰ – 10²⁰ *“Attracting fermions in a disordered lattice”*
Prof. Vladimir Yudson, HSE University, Russia
- 10²⁰ – 10⁵⁰ *“Mott insulator in the Ginzburg-Landau approximation for the Hubbard model”*
Dr. Liubov Markovich, Leiden University, Germany
- 10⁵⁰ – 11¹⁰ coffee break
- 11¹⁰ – 11⁵⁰ *“Novel phase transitions and quantum advantage in disordered quantum systems”*
Prof. Georgy Shlyapnikov, Université Paris-Saclay & RQC, France & Russia
- 11⁵⁰ – 12²⁰ *“Tomonaga-Luttinger liquid-Bose glass phase transition in a 1D”*
Dr. Murod Bahovadinov, RQC, Russia

12²⁰ – 12⁵⁰ “Mott insulator in the Ginzburg-Landau approximation for the Hubbard model”
Prof. Leonid Dubovskii, Kurchatov Institute, Russia

13⁰⁰ – 14³⁰ Lunch for registered participants at SamSU place

Session “Light-matter interactions in solids”

Chairman Prof. I. Tokatly

14³⁰ – 15¹⁰ “40 years of magnon BEC (From 1 mK to room temperature)”
Prof. Yury Bunkov, RQC, Russia

15¹⁰ – 15⁴⁰ “Exciton-magnon interaction in layered van der Waals antiferromagnet CrSBr”
Dr. Zakhar Iakovlev, Ioffe University, Russia

15⁴⁰ – 16¹⁰ “Trions in anisotropic Van der Waals magnetic CrSBr”
Prof. Marina Semina, Ioffe University, Russia

16¹⁰ – 16³⁰ coffee break

16³⁰ – 17⁰⁰ “Beyond mean-field effects in dynamics of BEC in the double-well potential”
Acad. Fatkhulla Abdullaev, Institute of Theoretical Physics @ National
University of Uzbekistan, Academy of Sciences of Uzbekistan

17⁰⁰ – 17³⁰ “Near-surface photoluminescence of microcrystals under conditions of Bose
condensation of carriers and excitons taking into account the Keldysh-Franz
quantum effect”
Prof. Nosirjon Yuldashev, Fergana Polytechnic Institute, Republic of Uzbekistan

17³⁰ – 18⁰⁰ “Resonant emission of matter waves from a bright soliton under time-periodic
perturbation”
Prof. Bakhtiyor Baizakov, Physical-Technical Institute of Academy of Sciences of
Uzbekistan, Institute of Theoretical Physics @ National University of Uzbekistan

02.10.2024 Wednesday

9³⁰ – 16⁰⁰ Conference excursion at the New Samarkand city. The meeting point is at the main
entrance of the Building of Engineering Physics of Samarkand State University

03.10.2024 Thursday

Session “Photonics, plasmonics and polaritonics”

Chairman Prof. V. Yudson

9⁰⁰ – 9⁴⁰ “Optical properties of photonic crystal layers in the vicinity of resonances”
Prof. Nikolay Gippius, Skoltech University, Russia

9⁴⁰ – 10¹⁰ “Reconfigurable photonic crystals enabled by stimuli-responsive shape memory
polymers”

Dr. Matin Ashurov, Westlake University, China.

10¹⁰– 10⁴⁰ “*The modulation of angular-resolved emission of CsPbBr₃ quantum dots embedded in photonic crystals*”

Dr. Maksym Stetsenko, Westlake University, China.

10⁴⁰ – 11⁰⁰ coffee break

Session “High energy physics and astrophysics”

Chairman Prof. A. Rubtsov

11⁰⁰-11³⁰ “*Effective action and vacuum expectations in nonlinear sigma-model*”
Prof. Beruni Fayzullaev, Institute of Theoretical Physics @ National University of Uzbekistan, Republic of Uzbekistan

11³⁰-12⁰⁰ “*QCD vacuum and hadrons*”
Acad. Mirzayusuf Musakhanov, Institute of Theoretical Physics @ National University of Uzbekistan, Academy of Sciences of Uzbekistan

12⁰⁰-12³⁰ “*Observable and Energetic Properties of Gravitational Compact Objects*”
Acad. Bobomurat Ahmedov, Institute of Theoretical Physics @ National University of Uzbekistan, Academy of Sciences of Uzbekistan

12³⁰-13¹⁰ “*Quantum corrections to the Schwinger’s particle creation*”
Prof. Emil Akhmedov, MIPT University, Russia

13¹⁰ – 14³⁰ Lunch for registered participants at the SamSU place

Session “Photonics, plasmonics and polaritonics”

Chairman Prof. E. Akhmedov

14³⁰ – 15¹⁰ “*Pathways of quantum polaritonics*”
Prof. Alexey Kavokin, RQC&MIPT, Russia

15¹⁰ – 15⁵⁰ “*Polariton condensates in rotating potentials: modes competition and synchronization*”
Prof. Alexey Yulin, ITMO University, Russia

15⁵⁰ – 16²⁰ “*Exciton-polariton stimulated scattering in hybrid halide perovskites*”
Dr. Vanik Shahnazaryan, MIPT University, Russia

16²⁰ – 16⁵⁰ “*Non-Hermitian trapping of Dirac exciton-polariton condensates*”
Prof. Anton Nalitov, MIPT University, Russia

16⁵⁰ – 17³⁰ “*Integrated microring resonators for soliton generation, coherent computing, and quantum light sources*”
Dr. Dmitry Chermoshentsev, RQC, Russia

17³⁰ – 18⁰⁰ “*Highly charged ions for fundamental physics*”
Dr. Dmitry Glazov, ITMO University, Russia

19.00-22.00 – the conference banquet at Oazis Garden, Abdurakhmon Zhomiy 59 A

04.10.2024 Friday

Session in honor of Prof. Alexander Melnikov

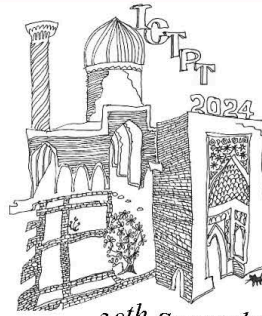
Chairman Prof. A. Yulin

9⁰⁰ – 9⁴⁰ “*Photogalvanic phenomena in superconductors and hybrid structures*”
Prof. Alexander Melnikov, MIPT University, Russia

- 9⁴⁰ – 10¹⁰ *“Control of ferroelectric domains in relaxed moiré superlattices”*
Dr. Vladimir Enaldiev, MIPT University, Russia
- 10¹⁰ – 10⁵⁰ *“tba”*
Prof. Mikhail Portnoi, University of Exeter, UK
- 10⁵⁰ – 11¹⁰** coffee break
- 11¹⁰ – 11⁵⁰ *“Excitons and trions in hybrid metal-carbon systems”*
Dr. Stella Kavokina, MIPT&RQC, Russia.
- 11⁵⁰ – 12²⁰ *“Theory of magnetotriion-polaritons in transition metal dichalcogenide monolayers”*
Dr. Andrey Kudlis, MIPT University, Russia
- 12²⁰ – 12⁵⁰ *“Off-diagonal disorder in multilayer topological insulator”*
prof. Zaur Alisultanov, MIPT University, Russia

Closing session

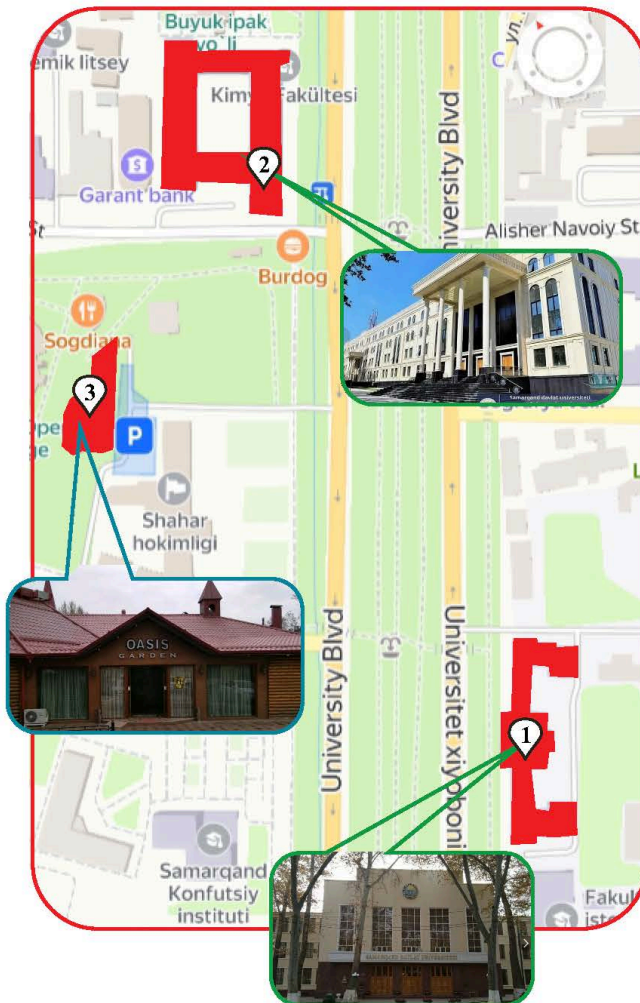
The International Conference on Theoretical Physics and New Technologies



30th September - 4th October
Samarkand, Republic of Uzbekistan



- 1 Main building of the Samarkand State University
- 2 Engineering Physics building of the Samarkand SU
- 3 Restaurant Oasis garden



MO, 30/09

- 09:00 Conference registration
- 12:00 Opening ceremony
- 10:00
- 11:00 Session "Condensed matter and theoretical physics"
- 13:00

13:00 Lunch at Oasis Garden

- 14:30 Session "Light-matter interactions in solids"
- 15:50
- 16:00 Poster session at the Conference hall
- 19:00

TU, 01/10

- 09:00 Session "Solid state theory"
- 12:50

13:10 Lunch at SamsU place

- 14:30 Session "Light-matter interactions in solids"
- 17:40

WE, 02/10

- 09:30 Conference excursion at the New Samarkand city
- 16:00

TH, 03/10

- 9:00 Session "Photonics, plasmonics and polaritonics"
- 10:40
- 11:30 Session "High energy physics, and astrophysics"
- 13:10

13:10 Lunch at SamsU place

- 14:30 Session "Photonics, plasmonics and polaritonics"
- 16:50

19:00 Conference banquet

FR, 04/10

- 09:00 Session in honor of Prof. Alexander Melnikov
- 13:20
- 13:30 Closing session