

The scientific program of ICNMP-2023

23.05.2023 Tuesday

16⁰⁰ – 18⁰⁰ – Conference registration in the lobby of a main building of the Samarkand State University, University Boulevard 15

16⁰⁰ – 19⁰⁰ – Poster session at a Conference hall. Local fruits and snack party

POSTER LIST:

- A1.** Manifestation of intermolecular interactions in ethyl acetate in Raman, FTIR spectra and ab-initio calculations
- A2.** Nonfulleren based conjugated polymers for organic solar cells
- A3.** Studies of silicon with binary silicon-germanium compounds
- A4.** Surface plasmon resonance of silver nanoparticles in interaction with water-soluble metalloporphyrins
- A5.** Spectroscopic study of some homodimers styrylcyanine dyes with sodium dodecyl sulfate
- A6.** Plasmon enhanced magneto-optic activity of nanocomposite based ferrofluids
- A7.** Intermolecular interactions in the chloroform solution of methyl ethyl ketone: experimental and theoretical study
- A8.** Infrared absorption spectra of potassium-aluminum glasses subjected to thermoradiation interaction
- A9.** The effect of elastic deformation on superionic disordering in LaF₃ crystals.
- A10.** Dependence of photoelastic properties of CaMoO₄ crystals on the direction of propagation of transverse acoustic waves
- A11.** Attenuation of acoustic waves in NaCl-NaBr crystals
- A12.** Study of Cu₂S nanostructure on Si using CoreAFM
- A13.** Laser spectroscopy of the rydberg states of the indium atom
- A14.** Dynamics of imbalanced quasi-one-dimensional binary Bose-Einstein condensate in external potentials
- A15.** Oscillations of a quasi-one-dimensional dipolar supersolid
- A16.** Effects of quantum fluctuations on tunneling of BEC in a double-well potential
- A17.** Modulational instability and discrete breathers in BEC in optical lattices-beyond mean-field
- A18.** Titanium dioxide metasurfaces for photovoltaic applications
- A19.** Non-perturbative effects of deep-strong light-matter interaction in a mesoscopic cavity-QED system
- A20.** Silicon doped with rare earth elements is a perspectival material of micro- and optoelectronics

24.05.2023 Wednesday

9.00 – 10.00 **Opening ceremony of the ICNMP at the Assembly Hall of SamSU**

9.00 – 9.10 - “*Introductory Word*”

prof R.I.Halmuradov, rector of Samarkand State University

9.10- 10.00 - “*Welcome Speech*”

E.O. Turdimiv, hokkim of Samarkand area

I.Y. Abdurakhmonov, minister of Higher Education, Science, and Innovations

prof. A. Kavokin, Conference Chairman

“Light-matter interactions in solids”

Chairman prof. A. Kavokin

10⁰⁰ – 10⁴⁰ “*Mixed-dimensional 2D/3D Heterostructures*”

prof. Suklyun Hong, Sejong University of Seoul, Korea

- 10⁴⁰ – 11²⁰ “2D magnetic monolayers for excitonics and polaritonics”
prof. Ivan Shelykh, Iceland University&RQC, Iceland&Russia
- 11²⁰ – 11⁴⁰ coffee break
- 11⁴⁰ – 12²⁰ “tba”
prof. Ifor Samuel, University of St Andrews, UK
- 12²⁰ – 13⁰⁰ “Novel phase transitions in disordered quantum systems”
prof. Georgy Shlyapnikov, Orsey University&RQC, France &Russia
- 13⁰⁰ – 14³⁰ lunch at the **Panorama** restaurant

**“New functional materials for electronics and photonics”
Chairman Prof. K. Kavokin**

- 14³⁰ – 15¹⁰ “Nanowires from highly mismatched alloys for nanophotonics”
prof. Irina Buyanova, Linköping University, Sweden
- 15¹⁰ – 15⁵⁰ “Tailoring topological phases via interference of the degenerate modes”
prof. Maxim Gorlach, ITMO University, Russia
- 15⁵⁰ – 16¹⁰ coffee break
- 16¹⁰ – 16³⁰ “Strain tuned quantum light emitters in layered semiconductors”
Dr. Snezana Lazic, Universidad Autónoma de Madrid, Spain
- 16³⁰ – 16⁵⁰ “Obtaining filamentous fullerene nanowhiskers and controlling their geometric dimensions”
Prof Sagdulla Bakhramov, Institute of Ion-Plasma and Laser Technologies,
Republic of Uzbekistan
- 16⁵⁰ – 17³⁰ “High sensitive photo-acoustic SF₆ concentration measurement electric systems”
Prof Fedor Mayorov, HLS Hypertech Laser Systems GmbH, Germany
- 17³⁰ – 17⁵⁰ “Laser heating and ablation of metal nanoparticles: the use for materials spectroscopy and modification”
Dr. Alexander Zinovev, Solaro Inc., USA

25.05.2023 Tuesday

**“Nanophotonics and plasmonics, polaritonics”
Chairman Prof. A. Akimov**

- 9⁰⁰ – 9⁴⁰ “Modern radiation physics in the light of “COMPLEXITY” concept”
prof. Boris Oksengendler, Institute of Materials Science of Tashkent, Republic
of Uzbekistan
- 9⁴⁰ – 10²⁰ “Strain engineering of excitons and exciton-polaritons in MoS₂”
prof. Tatiana V. Shubina, Ioffe Institute, Russia
- 10²⁰ – 11⁰⁰ “Spin properties of excitons, electrons, and holes in lead halide perovskite
crystals and nanocrystals”
Prof. Natalia Kopteva, TU Dortmund, Germany
- 11⁰⁰ – 11²⁰ coffee break

“Nanophotonics and plasmonics, polaritonics”

Chairman Prof. A. Rubtsov

- 11²⁰ – 12⁰⁰ “Modulational instability, and formation of quantum droplets in Bose-Einstein condensates”
Prof. Fatkhulla Abdullaev, Physical-Technical Institute of Tashkent, Republic of Uzbekistan
- 12⁰⁰ – 12⁴⁰ “Persistent circular currents of exciton polaritons in asymmetric optical traps”
Dr. Roman Cherbunin, Sankt-Petersburg State University, Russia
- 12⁴⁰ – 13⁰⁰ “Exciton as sensor of electric field in quantum well heterostructures”
Maxim Chukeev, Sankt-Petersburg State University, Russia
- 13⁰⁰ – 14³⁰ lunch at the **Panorama** restaurant

“New functional materials for electronics and photonics”

Chairman Prof. T. Shubina

- 14³⁰ – 15¹⁰ “Room-temperature near 100% spin and optically polarized opto-spintronic nanostructures”
prof. Weimin M. Chen, Linköping University, Sweden
- 15¹⁰ – 15⁵⁰ “Dynamic spin polarization in nanostructures by optical Maxwell demon”
prof. Kirill Kavokin, Sankt-Petersburg State University, Russia
- 15⁵⁰ – 16¹⁰ coffee break
- 16¹⁰ – 16⁵⁰ “Theory of spin-flip Raman scattering in 3D and 2D perovskites”
prof. Anna Rodina, Ioffe Institute, Russia
- 16⁵⁰ – 17³⁰ “Quantum-beats-induced energy oscillations of exciton states in quantum wells”
prof. Ivan Ignatiev, Sankt-Petersburg State University, Russia
- 17³⁰ – 17⁵⁰ “Excited exciton states in GaAs/AlGaAs QW in magnetic field”
Dr Philipp Grigoryev, Sankt-Petersburg State University, Russia

19.00-22.00 – conference banquet

26.05.2023 Friday

“Quantum cryptography, communications and simulations”

Chairman Prof. M. Portnoi

- 9⁰⁰ – 9⁴⁰ “Quantum-Dimensional Photoluminescence of Heterostructures Containing Microcrystals”
prof. Nosirjon Yuldashev, Fergana Polytechnic Institute, Republic of Uzbekistan
- 9⁴⁰ – 10²⁰ “Towards quantum simulations with ultracold thulium atoms at an optical lattice formed by 1064 nm laser light”
prof. Alexey Akimov, RQC, Russia
- 10²⁰ – 11⁰⁰ “tba”
prof. Alexey Rubtsov, Moscow State University & RQC, Russia
- 11⁰⁰ – 11³⁰ coffee break

“Carbon materials. THz spectroscopy and technology”

Chairman prof. Maxim Gorlach

- 11³⁰ – 11⁵⁰ “*Photonic graphene as analog platform to study the wave function dynamics: the momentum space vortices, skew scattering, and snake states*”
prof. Sergei Koniakhin, Institute for Basic Science of Daejeon, Korea
- 11⁵⁰ – 12³⁰ “*THz optoelectronics of quasi-one-dimensional carbon nanostructures*”
prof. Mikhail Portnoi, Exeter University, UK
- 12³⁰ – 12⁵⁰ “*Electronic model for chirality selection in the single-walled carbon nanotubes*”
prof. Nigora Turaeva, Webster University, USA.
- 12⁵⁰ – 13¹⁰ “*Skew scattering and ratchet effect in polariton graphene*”
Dr Olha Bahrova, Institute for Basic Science of Daejeon, Korea
- 13¹⁰ – 14³⁰ lunch at the **Panorama** restaurant
- 15⁰⁰ – 18⁰⁰ *the pedestrian excursion*

27.05.2023 Saturday

“Light-matter interactions in solids”

Chairman prof. Ivan Shelykh

- 9⁰⁰ – 9⁴⁰ “*Photonic Tamm states and gap Zak numbers*”
prof. Alexey Kavokin, Westlake University & MIPT, China & Russia
- 9⁴⁰ – 10⁰⁰ “*Comprehensive theory of optical phonon mode structure and Raman spectra in crystalline nanoparticles and quantum dots*”
prof. Sergei Koniakhin, Institute for Basic Science of Daejeon, Korea
- 10⁰⁰ – 10²⁰ “*MBE technology and experimental study of microcavities in St. Petersburg State University*”
Dr. Andrew Kurdyubov, Sankt-Petersburg State University, Russia
- 10²⁰ – 10⁴⁰ “*Influence of different types of interactions on the nuclear local field in undeformed bulk n-GaAs*”
Dr. Valentina Litvyak, Sankt-Petersburg State University, Russia
- 10⁴⁰ – 11⁰⁰ “*SERS substrates from inverse opal photonic crystal films*”
Dr. Matin Ashurov, Westlake University, China
- 11⁰⁰ – 11³⁰ coffee break

“Solar cells and photovoltaics”

Chairman prof. Sergei Koniakhin

- 11³⁰ – 12¹⁰ “*Photoinduced gating in Perovskite Photovoltaics by Ionic liquids*”
prof. Anvar Zakhidov, Texas University of Dallas, USA
- 12²⁰ – 12⁴⁰ “*Organic-Perovskite Non-monolithic Tandem Solar Cells in Parallel Connection*”
Dr. Daniel Saponi, ITMO University, Russia
- 12⁴⁰ – 13⁰⁰ “*Dielectric Nanoparticle for boosting efficiency of thin film photovoltaic devices*”
Maria A. Sandzhieva, ITMO University, Russia
- 13⁰⁰ – 13²⁰ “*Device fabrication of stable perovskite solar cells based on CsPbIBr₂ at low temperature*”
prof. Sherzod Nematov, Tashkent State Technical University, Republic of Uzbekistan
- 13²⁰ – 14³⁰ lunch at the **Panorama** restaurant
- “Condensed state spectroscopy”**

Chairman prof. Anvar Zakhidov

- 14³⁰ – 15¹⁰ *“Nanoscale structural phase transition in aqueous solutions of organic molecules”*
Prof. Denis I. Semenov, SamSU, Republic of Uzbekistan
- 15¹⁰ – 15³⁰ *“Raman, FTIR spectra and ab-initio calculations of acetylaceton aqueous solutions”*
Prof. Abduvahid Jumabayev, SamSU, Republic of Uzbekistan
- 15³⁰ – 15⁵⁰ *“Study of the vibration spectrum of hydrogen-bonded complexes involving hydrogen halides”*
Dr Gulam Murodov, SamSU, Republic of Uzbekistan
- 15⁵⁰ – 16¹⁰ *“Influence of temperature and concentration of electroactive selenium atoms on the parameters of auto-oscillation currents in silicon”*
Dr Manzura Shoabdurakhimova, Tashkent State Technical University, Republic of Uzbekistan
- 16¹⁰ – 16³⁰ *“Manifestation of hydrophobicity of water molecules on the rheological properties of the excluded band of nafion”*
Dr Yo'ichi Jo'rayev, SamSU, Republic of Uzbekistan

16³⁰ – 17⁰⁰ coffee break

"Light harvesting"

Chairman prof. Denis I. Semenov

- 17⁰⁰ – 17⁴⁰ *“Photonic phase transitions in complex network structures”*
prof Alexander Alodjantc, ITMO University, Russia
- 17⁴⁰ – 18⁰⁰ *“Lateral photoconductivity of metal-silicon dioxide-compensated silicon hybrid structures”*
Dr Eshkuvat Arzikulov, SamSU, Republic of Uzbekistan

Closing session