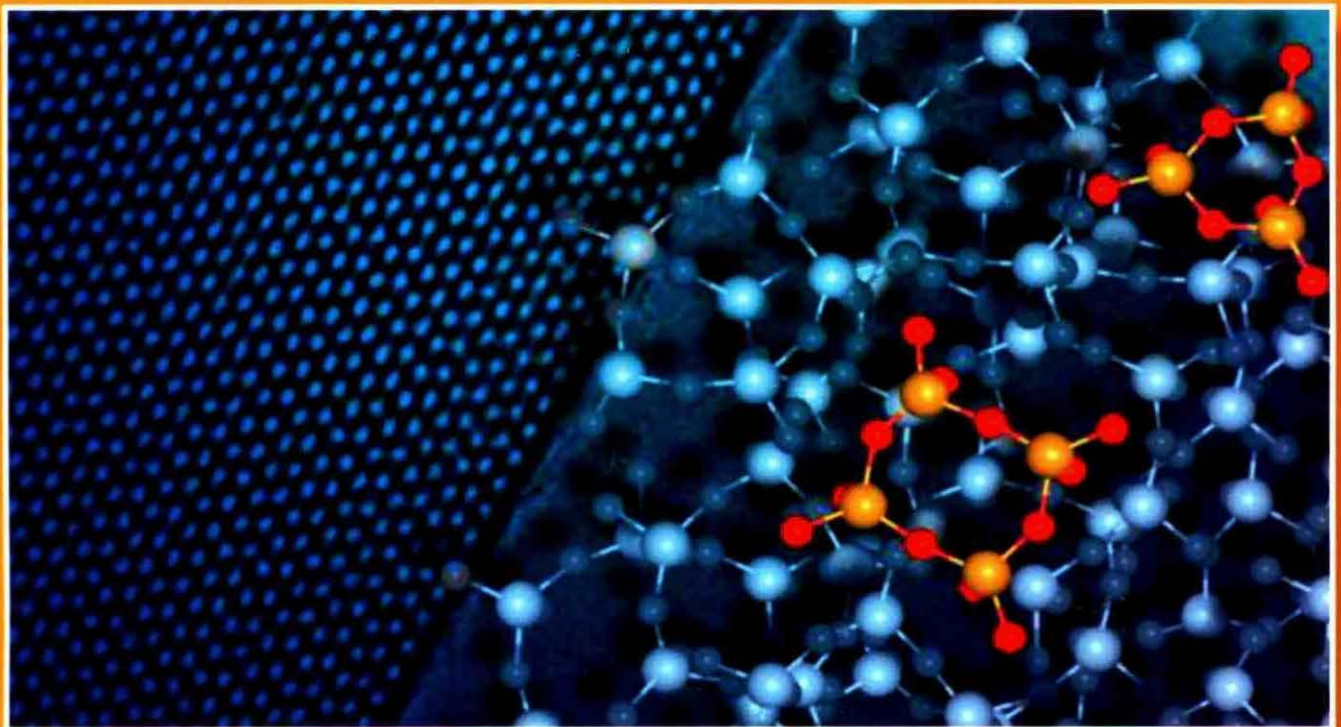


**LOW-DIMENSIONAL NANOSCALE SYSTEMS:
QUANTUM EFFECTS, PARTICLE TRANSPORT AND
ADVANCED MATERIALS**

November 6-7, 2012, Tashkent, Uzbekistan



Supported and Organized by:
Japan International Cooperation Agency
Physical Society of Uzbekistan
National University of Uzbekistan
Turin Polytechnic University in Tashkent

Scientific Programme

Advanced Research Workshop
*Low-Dimensional Nanoscale Systems:
Quantum Effects, Particle Transport and Advanced Materials*

6-7 November, 2012

Tashkent, Uzbekistan

Topics

- *Particle, heat and energy transport in low-dimensional nanoscale systems*
- *Energy conversion in low-dimensional nanoscale systems*
- *Quantum networks*
- *BEC and cold atoms in nanoscale traps*
- *Advanced materials and devices on the basis of low-dimensional nanoscale systems*

Day 1, November 6

9:00-10:00 *Registration and coffee*

10:00-10:30 *Opening Ceremony*

Morning Session

Chair: Elvira Ibragimova

10:30-11:00 Hidehiro Asai. *Theory of THZ radiation from intrinsic Josephson junction emitter.*

11:00-11:30 Bakhodir Abdullaev. *Anyon bosonized 2d fermions or a single boson physics of cuprates: experimental evidences.*

11:30-12:00 Boris Oksengendler. *Quantum dot shape effect on multiple exciton generation*

12:00-12:30 Khamdam Rakhimov. *Wave packet propagation in graphene with a random potential landscape*

12:30-12:45 Doniyor Babajonov. *Particle transport in kicked graphene nanoribbons.*

12:45-13:00 Dilnoza Elmurotova. *Effect of ZnO nanocrystal sizes on electron structure of ZnSe(Te)/ZnO:O, Zn nanoheterojunctions*

Lunch break (13:00-14:30)

Afternoon Session

Chair: Bakhodir Abdullaev

14:30-15:00 Takaaki Monnai. *Thermalization of quantum many-body systems and its application-operational approach*

15:00-15:30 Bakhtiyor Baizakov. *Variational analysis of a matter-wave soliton scattering by external potentials*

15:30-15:45 Khayot Ismatullaev. *Stationary flow of a quasi 1d BEC through a nonlinear attractive barrier*

15:45-16:00 Anvar Sherniyozov. *Second harmonic generation of CW laser radiation in heterogeneous two-dimensional quasi-phase matched crystals*

15:45-16:00 Davron Abdullaev. *Perturbative theory for the stationary state hydrodynamic Gross-Pitaevskii equations*

Coffee Break (16:15-16:45)

16:45-17:15 Elvira Ibragimova. *Quantum effects in optical response of nanocrystals in crystal and amorphous matrices under irradiation*

17:15-17:30 Safarboy Rahmonov. *Nonlinear dynamics of the kicked screened atom*

17:30-17:45 Ergashali Rakhimov. *Quantum dynamics and wave packet evolution in time-dependent quantum billiards*

Day 2, November 7

Morning Session

Chair: Bakhtiyor Baizakov

- 9:30-10:00 Yu Watanabe. *Formulation of uncertainty relation of error and disturbance in quantum measurement by using quantum estimation theory*
- 10:30-11:00 Zakirjon Kanokov. *Non-Markovian dynamics of quantum systems*
- 11:00-11:30 Davron Matrasulov. *Quantum graphs as an effective tool for modelling of particle transport in discrete structures*

Coffee Break (11:30-12:00)

- 12:00-12:15 Valijon Eshniyozov. *Particle transport kicked graph.*
- 12:15-12:30 Jambul Yusupov. *Breathing quantum graphs.*
- 12:30-12:45 Karim Sabirov. *Nonlinear Schrodinger equation on networks.*
- 12:45-13:00 Nurmukhammad Iskandarov. *Kicked Dirac particle in 1D box*

Lunch break (13:00-14:30)

Afternoon Session

Chair: Hidehiro Asai

- 14:30-15:00 Sergei Maksimov. *Relaxation of nonequilibrium structures and decay processes of clusters generated under ion sputtering of surfaces*
- 15:00-15:30 Atabek Atamuratov. *simulation of carrier distribution in nanometer nmosfet with single charge trapped in oxide and at SI-SiO₂ – interface*
- 15:30-16:00 Pierluigi Leone. *A comparative assessment on hydrogen production from low- and high-temperature electrolysis*
- 16:00-16:15 Javlonbek Rayimbaev. *Influence of magnetic field to the fluctuation of cosmic rays*

Coffee (16:15-17:00)