

# **New aspects of the Hadron and Astro/Nuclear Physics**

**Monday, 5 November 2018 - Saturday, 10 November 2018**

**National University of Uzbekistan**

## **Scientific Programme**

Program of the International workshop  
“New aspects of the Hadron and Astro/Nuclear Physics”  
National University of Uzbekistan, Tashkent, November 5-10, 2018

1st day, November 5 (Monday)  
15:30-16:30 Registration at Physics Department  
16:30-18:00 Reception at Physics Department

2nd day, November 6 (Tuesday)  
08:30-09:20 Registration

1st session - Opening ceremony (Convener: U. Yakhshiev)

09:20-09:30 Welcome speech  
Prof. Bekhzod Yuldashev  
President of Academy of Sciences of Uzbekistan

09:30-09:40 Welcome speech  
Prof. Avazjon Marakhimov  
Rector of National University of Uzbekistan

09:40-09:50 Welcome speech  
Mr. Muzaffar Djalalov  
Rector of Inha University in Tashkent

2nd session – Hadron Physics (Convener: U. Yakhshiev)

09:50-10:30  $\Upsilon$ -N dibaryon resonances in the phenomenological potential model  
Presenter: Prof. Makoto Oka  
Affiliation: Japan Atomic Energy Agency

10:30-11:10 Monopoles and confinement: new results and state of the art  
Presenter: Prof. Adriano Di Giacomo  
Affiliation: INFN & Pisa University, Italy

11:10-11:30 Coffee break

11:30-12:10 Skyrmions and kaon-nucleon interactions  
Presenter: Prof. Atsushi Hosaka  
Affiliation: RCNP, Osaka University, Japan

12:10-13:40 Lunch

3rd session – Hadron Physics (Convener: M. Musakhanov)

14:00-14:40 Status of LAMPS at RAON for nuclear symmetry energy  
Presenter: Prof. Byungsik Hong  
Affiliation: Korea University

14:40-15:20 Short range interaction in  $\pi J/\psi$ - $D\bar{D}^*$  channel  
Presenter: Dr. Yasuhiro Yamaguchi  
Affiliation: RIKEN, Japan  
15:20-15:50 Coffee break

4th session – Student session (Prof. B. Ahmedov)

15:50-16:10 Hadronic Paschen-Back effect in P-wave charmonia under the strong magnetic field  
Presenter: Mr. Sachio Iwasaki  
Affiliation: Tokyo Institute of Technology & Japan Atomic Energy Agency

16:10-16:30 Dynamical gluon mass at non-zero temperature in instanton vacuum model  
Presenter: Mr. Shirinbek Baratov  
Affiliation: National University of Uzbekistan

16:30-16:50 Heavy quarkonium potential at nonzero temperature in instanton liquid model  
Presenter: Mr. Nurmukhammad Rakhimov  
Affiliation: National University of Uzbekistan

16:50-17:10 Magnetic fields of relativistic magnetized compact stars in the braneworld  
Presenter: Mr. Abdullo Hakimov  
Affiliation: Ulugh Beg Astronomical Institute, Uzbekistan

17:10-17:30 Can a test magnetic field serve as a cosmic censor?  
Presenter: Mr. Sanjar Shaymatov  
Affiliation: Ulugh Beg Astronomical Institute, Uzbekistan

17:30-17:50 Plasma magnetosphere of slowly rotating magnetized neutron star in braneworld  
Presenter: Mr. Javlon Rayimbaev  
Affiliation: Ulugh Beg Astronomical Institute

3rd day, November 7 (Wednesday)

5th session – Nuclear Astrophysics (Convener: R. G. Pizzone)

09:30-10:10 Allowed Gamow-Teller (GT) strengths and  $\beta^+$  decay rates for Odd-A nuclei  
Presenter: Prof. Jameel-Un Nabi  
Affiliation: GIK Institute, Pakistan

10:10-10:50 Asymptotic theory of charged-particle transfer reactions and nuclear astrophysics

Presenter: Prof. Rakhim Yarmukhamedov

Affiliation: INP AS RUz

10:50-11:10 Coffee break

6th session – Nuclear Astrophysics (Convener: S. Cherubini)

11:10-11:50 Nuclear astrophysics and resonant reactions: exploring the threshold region with the Trojan Horse Method

Presenter: Dr. Marco La Cognata

Affiliation: INFN-LNS, Italy

11:50-12:30 Probing the Early Universe through nuclear physics

Presenter: Dr. Rosario Gianluca Pizzone

Affiliation: INFN-LNS, Italy

12:30 – 14:00 Lunch

7th session – Nuclear Astrophysics (Convener: M. La Cognata)

14:00-14:40 THM implication for stellar nucleosynthesis: a couple of examples

Presenter: Dr. Sara Palmerini

Affiliation: INFN Perugia, Italy

14:40-15:20 Indirect methods in nuclear astrophysics with radioactive ion beams

Presenter: Prof. Silvio Cherubini

Affiliation: Catania University & INFN-LNS, Italy

15:20-16:00 Theoretical study of the direct  $\alpha+d \rightarrow 6\text{Li}+\gamma$  astrophysical capture process in a three-body model: Astrophysical S-factor, reaction rates and primordial abundance

Presenter: Dr. Ergash Tursunov

Affiliation: Institute of Nuclear Physics, Academy of Sciences RUz

16:00-16:20 Coffee break

8th session – Student session (Convener: R. Yarmukhamedov)

16:20-16:40 Determination of the asymptotic normalization coefficient (nuclear vertex constant) for alpha  $\alpha+d \rightarrow 6\text{Li}$  from the new direct measured  $d(\alpha,\gamma) 6\text{Li}$  data and its implication for extrapolating the  $d(\alpha,\gamma)6\text{Li}$  astrophysical S factor at extremely low energies

Presenter: Mr. Kakhramon Tursunmakhatov

Affiliation: Gulistan State University & INP AS RUz

16:40-17:00 The role of the N/Z-ratio in colliding nuclei during the fusion of sulfur and lead

Presenter: Mr. Bakhodir Kayumov

Affiliation: Institute of Nuclear Physics, Academy of Sciences RUz

17:00-17:20  $3\text{He}(\alpha, \gamma)^7\text{Be}$  and  $3\text{H}(\alpha, \gamma)^7\text{Li}$  reaction rates and its implications for Big Bang nucleosynthesis

Presenter: Mr. Sobir Turakulov

Affiliation: Institute of Nuclear Physics, Academy of Sciences RUz

17:20-17:40 Collision centrality dependencies of charged pion production in  $^{12}\text{C}+^{181}\text{Ta}$  collisions at 4.2 A GeV/c

Presenter: Ms. Shakhnoza Kanokova

Affiliation: National University of Uzbekistan

17:40-18:00 Modified activation method for measurement of the yield of astrophysical reactions

Presenter: Mr. Olimjon Tojiboyev

Affiliation: Institute of Nuclear Physics, Academy of Sciences RUz

18:00-20:00 Banquet

4th day, November 8 (Thursday)

Tour day to Samarkand.

5th day, November 9 (Friday)

9th session – Nuclear matter and Nuclei (Convener: E. Tursunov)

10:00-10:40 Nuclear halos and Efimov effect: a three-body approach

Presenter: Prof. Indranil Mazumdar

Affiliation: Tata Institute of Fundamental Research, India

10:40-11:20 Various aspects of nuclear matter studied with direct reactions

Presenter: Prof. Tomohiro Uesaka

Affiliation: RIKEN, Japan

11:20-11:40 Coffee break

11:40-12:20 From nucleons to nuclei (chiral soliton approach)

Presenter: Prof. Ulugbek Yakhshiev

Affiliation: Inha University, Korea

12:20 – 13:50 Lunch

10th session – Neutron stars, black holes, gravitational waves (Convener: B. Fayzullaev)

14:00-14:40 Impact of neutron star merger and supernova nucleosynthesis on gravitational wave, element genesis and neutrino physics

Presenter: Prof. Toshitaka Kajino

Affiliation: University of Tokyo & Beihang University

14:40-15:20 Energetic and optical properties of gravitational compact objects

Presenter: Prof. Bobomurat Ahmedov

Affiliation: National University of Uzbekistan & Ulugh Beg Astronomical Institute

15:20-15:40 Coffee break

11th session – Nuclear reactions (Convener: I. Mazumdar)

15:40-16:20 Fragmentation of  $1.2A$  GeV/C  $^{10}\text{C}$  in nuclear emulsion

Presenter: Prof. Rahmatillo Bekmirzaev

Affiliation: Jizzax State Pedagogical Institute

16:20-17:00 Three-nucleon force effects on the proton elastic scattering with  $^{10}\text{C}$

Presenter: Dr. Alisher Sanetullaev

Affiliation: Inha University in Tashkent

17:00-17:40 Singular structure of the QED effective action

Presenter: Prof. Biruniy Fayzullaev

Affiliation: National University of Uzbekistan

12th session (Conveners: Adriano Di Giacomo & Yousuf Musakhanov)

17:40-18:00 Preliminary remarks

6th day, November 10 (Saturday)

13th session – 100 years of NUU

10:00-10:40 Application of the theory of open quantum systems to nuclear physics problems

Presenter: Prof. Zakirjan Kanokov

Affiliation: National University of Uzbekistan

10:40-11:20 Phenomenological analysis of properties rotational states of collective excitation isotopes  $^{158,160}\text{Gd}$

Presenter: Prof. Pazliddin Uzmanov

Affiliation: Namangan Engineering-Technology Institute.

11:20-11:30 Final remarks

11:30 End of the workshop