





Национальный центр  
ФИЗИКИ И МАТЕМАТИКИ



National Centre for  
Physics and Mathematics

Moscow State University  
Branch in Sarov

# XIV International School on Neutrino Physics and Astrophysics July 18-23, 2022, Sarov, Russia

<http://school.lomcon.ru>

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РОСАТОМ



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ВНИИЭФ





## 18 July, Monday

**10.00 – 10.30**      **Opening**

**Moscow Time (UTC+3)**

**(Central European Summer Time (UTC+2) is 1 hour less)**

Duration of lectures is **50+10 min**, duration of presentations at young scientist's session is **17+3 min**.

Chair: Alexander Studenikin (MSU & NCPM)

Welcome on behalf of the State Corporation ROSATOM, General Director **Alexey Likhachev**

Welcome on behalf of the Russian Academy of Sciences, President **Alexander Sergeev**

Welcome on behalf of the Moscow State University, Rector **Viktor Sadovnichy**

Welcome on behalf of JINR, Director **Grigory Trubnikov**

Welcome on behalf of RFNC-VNIIEF, Director **Valentin Kostyukov**

Welcome on behalf of RFNC-VNIIEF, Honorary Scientific Leader **Radiy Il'kaev**

**10.30 Alexander Studenikin** (MSU branch in Sarov, NCPM), *Welcome from Programme Committee: Amazing Neutrino (history, current status and prospects).*

**11.00 Jose W.F.Valle** (Univ. Valencia), *Neutrinos as a new physics pathfinder.*

**12.00** Group photographing of participants

**12.30 – 13.30**      Lunch

### Young scientist's session # 1

**14.00 Artem Popov** (MSU), *CP-violating effects in oscillations of supernova Majorana neutrinos (20 min).*

**14.20 Alexandra Chukhnova** (MSU), *T-symmetry violation during neutrino propagation in matter and electromagnetic field (20 min).*

**14.40 Alexey Likhkunov** (MSU), *Neutrino oscillation in ALPs matter (20 min).*

**15.00 – 15.30**      Tea break

**15.30** Transfer of participants to the MSU branch in Sarov and TechnoPark Sarov (Satis).

**Alexey Vasiliev** (ROSATOM), *The National Centre for Physics and Mathematics.*

**Grigory Kachalin** (VNIIEF& MSU-Sarov), *The Moscow University branch in Sarov "MSU\_Sarov".*

**17.00** Transfer to Sarov

### Young scientist's session # 2

**18.00 Vadim Shakhov** (MSU), *Neutrino charge radius and anapole moment and neutrino oscillations in external environment (20 min).*

**18.20 Fedor Lazarev** (MSU), *Elastic neutrino-nucleon and neutrino-nucleus scattering: The BSM electromagnetic channel (20 min).*

**18.40 Vladimir Yurovsky** (MSU), *Numerical study of galactic cosmic rays diffusion tensor (20 min).*

**19.00**      **Welcome Drink & Buffet**

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## 19 July, Tuesday

**09.00 Yury Kudenko** (INR RAS), *Neutrino enigmas: CP violation, mass hierarchy, sterile states.*

**10.00 Gioacchino Ranucci** (INFN, Milan), *Solar neutrino searches in laboratory experiments.*

**11.00 – 11.30** Tea break

**11.30 Dmitry Naumov** (JINR), *Neutrino physics with nuclear reactor.*

**12.30 Alexander Studenikin** (MSU), *Electromagnetic properties of neutrinos: Introduction to the theory and experimental constraints.*

**13.30 – 14.30** Lunch

### Young scientist's session # 3

**14.30 Bogdan Kutsenko** (Budker Inst. for Nuclear Phys., Novosibirsk), *Study of the conversion decay of an omega meson into a neutral pion and an electron-positron pair on the KMD-3 detector (20 min).*

**14.50 Kirill Ryabtsev** (MSU), *Flavour composition of high-energy astrophysical neutrinos (20 min).*

**15.10, Vadim Egorov** (MSU), *Neutrino oscillation processes in a quantum-field-theoretical approach (20 min).*

**15.30 Alexander Stuzhin** (MEPhI, Moscow), *Technique for detecting high-energy electrons and positrons by means of synchrotron radiation in the Earth's magnetic field (20 min).*

**16.00-16.30** Tea break

### Young scientist's session # 4

**16.30 Rinat Kagiroy** (MSU), *A universe with multiple bounces and alternative scenarios for the evolution of the universe in Horndesky's extended theories (20 min).*

**16.50 Radik Nugmanov** (NRC "Kurchatov Inst."), *Development of the method for reactor antineutrino candidates searching in detector iDREAM (20 min).*

**17.10 Ivan Stepantsov** (MSU), *Compton ionization of atomic hydrogen and positronium: A comparative study (20 min).*

**17.30 Evgenia Koptyaeva** (Demidov Yarislavl State Univ.), *Supernova neutrinos: analytical approximations and their verification on modern simulation data (20 min).*

**18.10 Artyem Bystryakov** (JINR), *S3 - compact antineutrino detector (20 min)*

**19.00** Dinner

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## 20 July, Wednesday

**09.00 Bayarto Lubsandorzhev** (INR RAS), *Experimental methods in neutrino physics.*

**10.00 Arkady Yukhimchuk** (VNIIEF), *The search for neutrino magnetic moment with tritium source in Sarov.*

**11.00 – 11.30** Tea break

**11.30 Carlo Giunti** (INFN, Turin), *New physics with coherent elastic neutrino-nucleus scattering.*

**12.30 Konstantin Kouzakov** (MSU), *Neutrino scattering on electrons and nuclei.*

**13.30 – 14.30** Lunch

**14.30 – 16.30** Excursion program

**16.30** Tea break

**17.00 Fedor Šimkovic** (Univ. of Bratislava & JINR), *Neutrinoless double beta decay.*

**18.00 Alexander Kryukov** (MSU), *Machine learning, neural network and artificial intelligence.*

**19.30** Dinner

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## 21 July, Thursday

**09.00 Eduard Boos** (MSU), *Standard Model and beyond.*

**10.00 Ivanka Bozovic Jelisavcic** (Univ. of Belgrade), *Higgs physics with future linear colliders.*

**11.00 – 11.30** Tea break

**11.30 Konstantin Postnov** (MSU), *Multimessenger astronomy.*

**12.30 Dmitry Gorbunov** (INR RAS), *Problems of the Early Universe.*

**13.30 – 14.30** Lunch

**14.30 – 16.30** Excursion program

**16.30** Tea break

**17.00 Diana Seitova** (JINR, Dubna), *Baikal-GVD neutrino telescope: Recent status and future perspectives.*

### Young scientist's session # 5

**18.00 Alexander Gorin** (INR RAS), *Search for dark photons in the near detector of the T2K experiment (20 min).*

**18.20 Oddharak Tyagi** (INFN, Turin & Jawaharlal Nehru Univ., New Delhi), *Constraining large extra dimensions with neutrino experiments (20 min).*

**19.30** Conference Dinner



## 22 July, Friday

**09.00 Alexander Zakharov** (JINR), *Black hole at Galactic Centre: The observational proofs.*

**10.00 Konstantin Stankevich** (MSU), *Neutrino oscillations and quantum decoherence: The theory and experiment.*

**11.00 – 11.30** Tea break

**11.30 Eugeny Yakushev** (JINR), *Direct search for Dark Matter.*

**12.30 Andrey Pankratov** (Alekseev Univ., Nizhny Novgorod), *Subterahertz receivers for radio astronomy and dark matter search.*

**13.30 – 14.30** Lunch

### Young scientist's session # 6

**14.30 Anna Mikhailova** (MEPhI), *Electron and proton separation methods for the GAMMA-400 gamma spectrometer model (20 min)*

**14.50 Anna Dergacheva** (INR RAS), *3D scintillator neutrino detector SuperFGD of the T2K experiment (20 min).*

**15.10 Anastasiya Purtova** (MSU), *Influence of quantum decoherence of neutrino mass states on collective oscillations (20 min).*

**15.30 Nikita Dolganov** (MSU), *Flavour and spin-flavour neutrino oscillations with account for neutrino anapole moment (20 min).*

**15.50 Ivan Suslov** (INR RAS), *R&D new tellurium-loaded liquid scintillator based on linear alkylbenzene (20 min).*

**16.10 Oleg Moskalev** (VNIIEP), *The history of the Russian atomic project.*

**16.40 Closing Session of the 14<sup>th</sup> International School on Neutrino Physics and Astrophysics**

### Farewell wishes

**Valentin Kostyukov**, the RFNC-VNIIEF Director, chair of the Organizing Committee

**Vyacheslav Solovyev**, the RFNC-VNIIEF Scientific Leader

**Alexander Studenikin** (MSU), co-chair of the Programme Committee

### Farewell Drink & Buffet

