

Supported by



BULGARIAN
NATIONAL
SCIENCE FUND
Ministry of Education and Science

41st international workshop on INTEGRATED NUCLEAR THEORY

30 June – 6 July 2024

Rila Mountains, Bulgaria

<http://ntl.inrne.bas.bg/workshop/2024/>

PROGRAMME

Monday, July 1

MORNING session

09:30 – 09:45 **OPENING**

09:45 – 10:15 **D. Roux**: Something from nothing: The gamma-ray spectroscopy of Uranium-231

10:15 – 10:45 **S. Kerrouchi**: Machine learning's role in advancing theoretical nuclear structure understanding

10:45 – 11:15 COFFEE

11:15 – 11:45 **N. Minkov**: Probing the stability of quadrupole-octupole deformation in Xe-Ba-Ce mass region

11:45 – 12:15 **D. Vale** (*remote*): Rearrangement terms in relativistic point coupling models in Second Tamm-Dancoff approximation

AFTERNOON session

17:00 – 17:30 COFFEE

17:30 – 18:00 **R. Benjedi** (*remote*): Investigation of the shape coexistence and mixing phenomena in the $^{42,44}\text{Ca}$ isotopes

18:00 – 18:30 **F. Lassiaille** (*remote*): Relativity predicts a variable G

Tuesday, July 2

MORNING session

- 09:30 – 10:00 **D. Rodriguez Entem**: NN chiral EFT and non-perturbative renormalization
- 10:00 – 10:30 **A.-I. Budaca**: Radioactive decay with a screened electrostatic interaction
- 10:30 – 11:00 **B. Cai** (*remote*): Isomeric structure in ^{100}Sn region: Possible competition between β^+ decay and proton emission in isomeric unbound nucleus ^{97}Sn
- 11:00 – 11:30 COFFEE
- 11:30 – 12:00 **C. Anghel**: Studies of decay modes for superheavy nuclei with $Z = 118\text{--}122$ and $N \sim 172$
- 12:00 – 12:30 **A. Modabbir** (*remote*): Influence of effective surface property on nuclear structure within coherent density fluctuation model

AFTERNOON session

- 15:30 – 16:00 COFFEE
- 16:00 – 16:30 **M. Ivanov**: Superscaling analysis of inclusive electron and neutrino (antineutrino) scattering within the coherent density fluctuation model
- 16:30 – 17:00 **Y. Mutafchieva**: The influence of strong magnetic fields on the structure and composition of neutron star crusts
- 17:00 – 17:30 **G. Popa** (*remote*): Analysis of elastic scattering observables calculated with different NN interactions
- 17:30 – 18:00 **J. Palamadai** (*remote*): Simulation of flow blockage scenarios in compact fast reactors with pin-type fuel assemblies

Wednesday, July 3

MORNING session

- 09:30 – 10:00 **J.J. Van Zyl:** Contributions of Professor Anthony Cowley to the field of nuclear reaction studies
- 10:00 – 10:30 **A. Deltuva** (*remote*): New developments in few-cluster nuclear reactions
- 10:30 – 11:00 **M. Gaidarov:** Microscopic analysis of elastic scattering of one-proton halo nucleus ^{17}F on different mass targets
- 11:00 – 11:30 COFFEE
- 11:30 – 12:00 **P. Kuznetsov** (*remote*): Analysis of elastic α - ^{58}Ni scattering in the energy region 82-699 MeV by the S-matrix model
- 12:00 – 12:30 **S. Dimitrova:** Shell model corrections to proton induced pre-equilibrium reactions

AFTERNOON session

- 15:30 – 16:00 COFFEE
- 16:00 – 16:30 **Md. Abdullah** (*remote*): Alpha-nucleus potentials for targets near $Z = 50$
- 16:30 – 17:00 **Surender** (*remote*): Interference effects in breakup reaction of halo nuclei
- 17:00 – 17:30 **I.V. Petrov:** Marquise du Châtelet: acquainting Europe with Newtonian philosophy
- 20:00 – **OFFICIAL DINNER**

Thursday, July 4

EXCURSION



Friday, July 5

MORNING session

- 09:30 – 10:00 **İ. Sarpün**: Single folding potential calculations in Cerium isotopes
- 10:00 – 10:30 **K. Drumev**: Role of the higher-spin configurations and the universal description of low-energy structure of $N \sim Z$ even-even sd-shell nuclei in the algebraic microscopic mixed-mode approach
- 10:30 – 11:00 **A. El Batoul** (*remote*): Investigating α -decay processes with position-dependent effective mass
- 11:00 – 11:30 COFFEE
- 11:30 – 12:00 **M. Imran** (*remote*): Reaction cross sections and density distributions of neutron-rich halo nuclei
- 12:00 – 12:30 **M. El Adri** (*remote*): Impact of the nuclear shape on the soft monopole resonance in the $Z = 58$ nucleus within DD-ME2+QFAM
- 12:30 – 13:00 **A. Hanaia** (*remote*): Solving deformed quantum equations with certain potentials