International Symposium on Nuclear Science

Monday 9 September 2024 - Friday 13 September 2024

Hotel Astoria, Sofia, Bulgaria

Scientific Program

Sunday 8 Sept. 2024 – Grand Hotel Astoria

17:30 – 19:30 – Registration
18:00 – 19:30 – Welcome drink
Monday 9 Sept. 2024 – Grand Hotel Astoria

08:45 – 09:00 – Opening ceremony
1.1 Exotic Nuclei (09:00 – 10:40), chair Georgi Georgiev
1.1.1 **09:00 – 09: 35 – Hiro Sakurai,** "Study of exotic nuclei at RIKEN"
1.1.2 **09:35 – 10:00 – Timo Dickel**, "Experiments with thermalized relativistic beams at GSI and FAIR"
1.1.3 **10:00 – 10:25 – Liam Gaffney,** "Recent results with post-accelerated radioactive ion beams at HIE-ISOLDE"
1.1.4 **10:25 – 10:40 – Paul Constantin,** "Exploratory Exotic Nuclei Research viaMulti-Nucleon Transfer at the FRS Ion Catcher"
10:40 – 11:00 Coffee break
1.2 Exotic Nuclei (11:00 – 12:55), chair Norbert Pietralla
1.2.1 **11:00 – 11:25 – Navin Alahari,** "Nuclear Sightseeing"
1.2.2 **11:25 – 11:50 – Jürgen Gerl,** "Phase-0 experiments and perspectives of HISPEC/DESPEC at FAIR"
1.2.3 **11:50 – 12:15 – Nicu Marginean,** "Selected nuclear structure results obtained with the ROSPHERE array at IFIN-HH"
1.2.4 **12:15 – 12:40 – Andrea Gottardo,** "Recent results from the AGATA campaign at LNL and related topics"
1.2.5 **12:40 – 12:55 – Desislava Kalaydjieva,** "Multiple shape coexistence in 100Zr"
12:55 – 14:00 Lunch break
1.3 Exotic Nuclei (14:00 – 15:55), chair Faiçal Azaiez
1.3.1 **14:00 – 14:35 – Klaus Blaum,** "Precision Penning-trap mass measurements for nuclear, neutrino, and fundamental physics studies"
1.3.2 **14:35 – 15:00 – Nikolay Minkov,** "Models for nuclear masses and separation energies"
1.3.3 **15:00 – 15:25 – Silvia Lenzi,** "The Isospin-symmetric Island of inversion at the N~Z line"
1.3.4 **15:25 – 15:40 – Philippe Quentin,** "Pairing matrix elements and the average single particle level density at the Fermi energy: a simple and efficient estimation method"
1.3.5 **15:40 – 15:55 – Kalin Drumev,** "Description of Collective States in the Multi-Shell Extension of the Mixed-Mode Algebraic Microscopic Pairing-Plus- Quadrupole Shell Model"
15:55 – 16:15 Coffee break
1.4 Exotic Nuclei (16:15 – 17:40), chair Atsushi Tamii
1.4.1 **16:15 – 16:40 - Tetsuya Ohnishi,** "Present status and perspective of the SCRIT electron scattering facility"
1.4.2 **16:40 – 16:55 – Clement Legris,** "Nucleon charge radius measurement with low energy electron scattering"
1.4.3 **16:55 – 17:10 – Chandan Sarma,** "Investigation of entanglement in □□Na within no-core shell model"
1.4.4 **17:10 – 17:25 – Gururaj Kumar,** "Earthquake Precursor Measurements Employing a Network of Radon Sensors"
1.4.5 **17:25 – 17:40 – Sam Porter,** "Precise measurements of superallowed mirror beta decays at the St. Benedict facility"
Tuesday 10 Sept. 2024 – Grand Hotel Astoria

2.1 Nuclear Photonics (8:45 – 10:50), chair Timo Dickel
2.1.1 **08:45 – 09:20 – Norbert Pietralla,** "To the Nature of the Nuclear Giant Dipole Resonance"
2.1.2 **09:20 – 09:45 – Calin Ur,** "First results from ELI-NP"
2.1.3 **09:45 – 10:10 – Adam Maj,** "Nuclear Collective Vibrational Modes studied at the Proton Therapy Center CCB in Krakow"

2.1.4 **10:10 – 10:35 – Anton Tonchev,** “Recent Results from Neutron- and Photo-Induced Fission”
2.1.5 **10:35 – 10:50 – Olivier Roig,** “Extraction of γ-strength function, nuclear level density and isomeric ratios from measurements of the γ-cascade of the 177Lu using the new multi-detector SFyNCS”
10:50 – 11:10 Coffee break
2.2 Nuclear Photonics (11:10 – 13:00), chair – Nikolay Minkov
2.2.1 **11:10 – 11:35 – Franco Camera,** “GDR measurements present and future”
2.2.2 **11:35 – 12:00 – Atsushi Tamii,** “Electric Dipole Response of Nuclei and Photo-Nuclear Reactions Studied by Proton Scattering”
2.2.3 **12:00 – 12:15 – P-A Söderström,** “Gamma Above Neutron Threshold at ELI-NP: How we got here and where we are going”
2.2.4 **12:15 – 12:30 – Andreea Ghitiu,** “Photo-Absorbtion of light Nuclei and Decay Observation for Reactions in Astrophysics: The Pandora Project”
2.2.5 **12:30 – 12:45 – Asli Kusoglu,** “Understanding better the PDR strength through (d,pγ) reactions: N = 28 and 50 nuclei”
2.2.6 **12:45 – 13:00 – Siqin Fan,** “Ab initio calculations: i) the highest-multipole electromagnetic transition; ii) A = 14 exotic nuclei”
13:00 – 14:00 Lunch break
2.3 Applications (14:00 – 16:10), chair – Mihai Straticiuc
2.3.1 **14:00 – 14:35 – Paddy Regan,** “Metrology for Nuclear Physics Research and Applications”
2.3.2 **14:35 – 15:00 – Luis Fraile,** “Fast scintillator detectors for nuclear structure and applications”
2.3.3 **15:00 – 15:25 – Filip Kondev,** “Nuclear Data on Fundamental Nuclear Physics Properties”
2.3.4 **15:25 – 15:40 – Peter Ivanov,** “Development of radiochemical purification methods for emerging medical radionuclides at the UK National Physical Laboratory”
2.3.5 **15:40 – 15:55 – Dmitry Testov,** “Advancing the (α,n) program at ELI-NP/IFIN-HH”
2.3.6 **15:55 – 16:10 – Edward O'Sullivan,** “Towards Complete Electron-Gamma and Gamma-Gamma Decay Spectroscopy of 152Tb: a Diagnostic Component of the Terbium Theragnostic Toolbox”
16:10 – 16:30 Coffee break
2.4 Nuclear Photonics + (16:30 – 18:00), chair – Aurora Tumino
2.4.1 **16:30 – 16:55 – Yifei Niu,** “A novel way to study nuclear giant resonances with vortex gamma photons”
2.4.2 **16:55 – 17:20 – Wen Luo,** “Recent progress on production of medical isotopes and nuclear isomers using XingGuangIII laser facility”
2.4.3 **17:20 – 17:35 – Gianluca Pizzone,** “Neutron induced reactions for BBN: an indirect approach”
2.4.4 **17:35 – 17:50 – Diana Kocheva,** “Study the structure of the low-lying states of 206Po”
18:10 – 19:40 Poster session
Wednesday 11 Sept. 2024 – Sofia University St. Kliment Ohridski

09:00 – 09:20 – Honour ceremony
3.1 Nuclear Moments (09:15 – 10:25), chair Calin Ur
3.1.1 **09:20 – 09:55 – Andrew Stuchbery,** “Recent progress and next steps in excited-state moment measurements”
3.1.2 **09:55 – 10:10 – Deyan Yordanov,** “COLLAPS gets it straight”
3.1.3 **10:10 – 10:25 – Theo Mertzimekis,** “Single-particle vs the collective degrees of freedom on the nuclear magnetic octupole moment”
10:25 – 10:40 Conference photo
10:40 – 11:25 Coffee break
3.2 **Nuclear Moments +** (11:25 – 12:50), chair Dimiter Balabanski
3.2.1 **11:25 – 11:50 – Georgi Georgiev,** “Nuclear moments of isomeric states – from projectile fragmentation to low-energy RIB’s and back”
3.2.2 **11:50 – 12:05 – Yuichi Ichikawa,** “Isomer nuclear-moment measurement of neutron-rich nuclei 75Cu and 99Zr using highly spin-aligned beams”
3.2.3 **12:05 – 12:20 – Jean-Michel Daugas,** “Magnetic moments of micro-second isomeric states

at N=59 shape transition region"
3.2.4 **12:20 – 12:35 – Radomira Lozeva,** "Inside nuclear properties with g-factors"
3.2.5 **12:35 – 12:50 – Konstantin Stoychev,** "Magnetic moments of isomeric states: the region of 68Ni"

12:50 – 14:30 Lunch break (restaurant Victoria)
14:30 – 16:30 Conference excursion
19:30 – 23:00 Conference dinner (Grand Hotel Astoria)
Thursday 12 Sept. 2024 – Grand Hotel Astoria

4.1 Astrophysics (08:45 – 10:55), chair Ani Aprahamian
4.1.1 **08:45 – 09:20 – Aurora Tumino,** "Indirect methods to explore Nuclear Astrophysics"
4.1.2 **09:20 – 09:45 – Catalin Matei,** "Photonuclear reactions with charged particles detection for nuclear astrophysics studies"
4.1.3 **9:45 – 10:05 – Moshe Gai,** "Measurements of the 12C(α,γ) Reaction With an O-TPC at the HIgS"
4.1.4 **10:05 – 10:25 – Mikolaj Cwiok,** "First results on 16O photo-disintegration studies at HIγS with the Warsaw TPC"
4.1.5 **10:25 – 10:40 – Luca Guardo,** "Developing system arrays for new experimental approach in nuclear astrophysics"
4.1.6 **10:40 – 10:55 – Eugene Oks,** "Shedding Light on Neutron Lifetime Puzzle via the New Unexpected Result of the Two-Body Decay of Neutrons"
10:55 – 11:15 Coffee break
4.2 Exotic Processes + (11:15 – 12:45), chair Paddy Regan
4.2.1 **11:15 – 11:50 – Bertram Blank,** "Weak-interaction studies with nuclear beta decay"
4.2.2 **11:50 – 12:15 – Danilo Gambacurta,** "Gamow-Teller excitations and beta-decay within the Subtracted Second RPA"
4.2.3 **12:15 – 12:30 – Surjit Mukherjee,** "Probing Uncertainties in Proton Capture on p-Nuclei: A Monte Carlo Investigation with TALYS-1.96"
4.2.4 **12:30 – 12:45 – Deepika Choudhury,** "Neutron observables in the spontaneous fission of 252Cf"
12:45 – 14:00 Lunch break
4.3 Nuclear Structure (14:00 – 15:50), chair Andrew Stuchbery
4.3.1 **14:00 – 14:25 – Ani Aprahamian,** "The Nature of 0+ States in Deformed Nuclei"
4.3.2 **14:25 – 14:50 – Jan Jolie,** "Absolute electromagnetic transition rates in semi-magic N = 50 isotones as a test for (□□g9/2)□□ single particle calculations."
4.3.3 **14:50 – 15:05 – Volker Werner,** "Triaxial and gamma-soft features in shape-transitional regions"
4.3.4 **15:05 – 15:20 – Polytimos Vasileiou,** "On the structure of quadrupole bands in even-even Hf and W"
4.3.5 **15:20 – 15:35 – Casper-David Lakenbrink,** "Investigation of shape coexistence in 172Pt via lifetime measurements"
4.3.6 **15:35 – 15:50 – Clemens Nickel,** "First measurement of the lifetime of the 21+ state of 200Pt"
15:50 – 16:10 Coffee break
4.4 Nuclear Structure (15:50 – 18:00), chair Navin Alahari
4.4.1 **16:10 – 16:35 – Rudrajyoti Palit,** "Recent Results from the Hybrid Gamma Array at BARC-TIFR Pelletron Linac Facility"
4.4.2 **16:35 – 17:00 – Anu Kankainen,** "High-precision mass measurements at JYFL"
4.4.3 **17:00 – 17:15 – Razvan Lica,** "On the nature of yrast states in neutron-rich Po isotopes"
4.4.4 **17:15 – 17:30 – Alexandru State,** "Characterization of supersonic helium jets used for heavy ion transport in ion catchers"
4.4.5 **17:30 – 17:45 – Iulia Maria Harca,** "Development of novel MPGD based detectors for rare-isotope science at FRIB"
4.4.6 **17:45 – 18:00 – Anastasia Cassisa,** "Study of neutron rich Si isotopes with ACTive TARget

detector”
Friday 13 Sept. 2024 – Grand Hotel Astoria

5.1 Astrophysics (08:45 – 10:50), chair Catalin Matei
5.1.1 **08:45 – 09:10 – Fairouz Hammache,** “Recent studies of stellar nucleosynthesis using transfer reactions”
5.1.2 **09:10 – 09:25 – Yi Xu,** “Vortex photon induced nuclear reaction: mechanism, model, and application to the studies of giant resonance and astrophysical reaction rate”
5.1.3 **09:25 – 09:40 – Jinti Barman,** “Impact of Exotic Structures of Nuclei in the A = 20 – 40 Mass Region on Abundance Estimates for Various Astrophysical Conditions of Explosive Nucleosynthesis”
5.1.4 **09:40 – 09:55 – Yutaka Mizoi,** “A new method to measure excitation function of nuclear reaction using γ-ray detector”
5.1.5 **09:55 – 10:10 – Andrey Blazhev,** “nu-Ball2 fission campaign: validation of the fast-timing analysis using 134,136Te”
5.1.6 **10:10 – 10:25 – Adrian Rotaru,** “Enhanced Ion Manipulation Using Harmonic Ion Transport System and Spiral RF Carpets”
5.1.7 **10:25 – 10:50** – 3 wining posters x 8 minutes each
Katharina Ide - Lifetime Determination of Low-Lying Yrast States of 170W
Andrei Hotnog - Development of a Versatile Ion Beam Setup for Proton Irradiation Experiments at IFIN-HH
Jacob Heery - Emergence of quadrupole and octupole collectivity around N=50, Z=40: Coulomb excitation of 92Mo

10:50 – 11:10 Coffee break
5.2 Applications (10:10 – 12:35), chair Pavlin Grudev
5.2.1 **10:10 – 11:35 – Mihai Sraticiuc,** “Development of a YAP:Ce Detector for CRYRING@ESR”
5.2.2 **11:35 – 11:50 – Gihan Velisa,** “Annealing of pre-existing defects in semiconductors using MeV ion beams”
5.2.3 **11:50 – 12:05 – Ion Burducea,** “A new 3He NRA setup at the 3 MV Tandetron from IFIN-HH”
5.2.4 **12:05 – 12:20 – Simon Zhamkochyan,** “RF Timer Based Picosecond Precision Heavy Ion Detector”
5.2.5 **12:20 – 12:35 – Sergey Abrahamyan,** “RF timer based time-of-flight spectrometer for the measurement of the absolute energy of alpha particles”
12:35 – 14:00 Lunch break
5.3 Applications (14:00 – 15:55), chair Georgi Rainovski
5.3.1 **14:00 – 14:15 – Nikolay Djourelov,** “Nuclear Spectroscopy Methods in Aid of Materials Science at ELI-NP”
5.3.2 **14:15 – 14:30 – Shintaro Go,** “Nuclear spectroscopy based on a multi-layer CdTe Compton Camera”
5.3.3 **14:30 – 14:45 – Rositsa Gencheva,** “Investigation of the thermochemical and stratification processes of molten nuclear fuel at the bottom of the reactor vessel”
5.3.4 **14:45 – 15:00 – Petya Vryashkova,** “Evaluation of the FPs release resulting from a severe accident in a SFP by using ASTEC/SUNSET”
5.3.5 **15:00 – 15:15** – Young scientists prizes
5.3.6 **15:15 – 15:45 – Faical Azaiez,** Summary and highlights
5.3.7 **15:45 – 15:55 – Closing remarks**
15:55 – 16:15 – Coffee break

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Departure

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List of posters

Cosmin-Marian Cipu-Drăghici, “The Role of Symmetry Energy on Dipolar Response”
Jacob Heery, “Emergence of quadrupole and octupole collectivity around N = 50, Z = 40: Coulomb exictation of 92Mo”
Andrei-Theodor Hotnog, “Development of a Versatile Ion Beam Setup for Proton Irradiation Experiments at IFIN-HH”
Nia Hunter, “Hunting For Isotopes: Why You Should Care About Graphite!”
Katharina Ide, “Lifetime determination of low-lying yrast states of 170W”
Vincent Lelasseux, “Implementation of addback procedure on ELIADE clovers and validation through source tests and Geant4 simulations”
Hannes Mayr, “Lifetime measurement of the 41+ state of 132Te”
Cosmina Nedelcu, “Influence of nuclear properties on nucleon capture reaction rate”
Deepak Patel, “Large-scale shell-model study of 2νECEC of 78Kr”
Teodora Sebe, “The electric dipole response of 106Pd nuclei”
Dmitry Testov, “Towards the development of a low-intensity quasi mono-energetic neutron beam at the Tandem accelerators of IFIN-HH for in-beam tests of the mini-eTPC active target detector”
Vlad Vasilca, “Implementation status of the Gas Management System for the ELI-NP Mini-eTPC