

**14th International Spring
Seminar on Nuclear Physics:
"Cutting-edge developments
in nuclear structure physics"**

Report of Contributions

Contribution ID: 77

Type: **not specified**

Registration

Monday, 19 May 2025 08:00 (1 hour)

Contribution ID: 78

Type: **not specified**

WELCOME

Monday, 19 May 2025 09:00 (10 minutes)

Contribution ID: 79

Type: **not specified**

Shell model meets in-beam gamma-ray spectroscopy on both sides of the nuclear chart

Monday, 19 May 2025 09:10 (25 minutes)

Presenter: GADE, Alexandra (Facility for Rare Isotope Beams)

Session Classification: Morning Session 1

Contribution ID: **80**

Type: **not specified**

Structure of the calcium isotopes: past problems and future prospects

Monday, 19 May 2025 09:35 (25 minutes)

Presenter: BROWN, B. A. (Facility for Rare Isotopes, Michigan State University, East Lansing, Michigan)

Session Classification: Morning Session 1

Contribution ID: **81**

Type: **not specified**

Revealing the Dynamics of Three-Body Decay

Monday, 19 May 2025 10:00 (25 minutes)

Presenter: WANG, Simin

Session Classification: Morning Session 1

Contribution ID: 82

Type: **not specified**

Updates on the relativistic nuclear field theory: refining dynamical kernels of the nuclear response

Monday, 19 May 2025 10:25 (25 minutes)

Presenter: LITVINOVA, Elena (Western Michigan University)

Session Classification: Morning Session 1

Contribution ID: 83

Type: **not specified**

Highlights from INFN-LNL, the Status and the Future plans of the SPES project

Monday, 19 May 2025 11:20 (25 minutes)

Presenter: MARCHI, Tommaso (INFN - LNL)

Session Classification: Morning Session 2

Contribution ID: **84**

Type: **not specified**

Extrapolation and emulation techniques for few-body resonances

Monday, 19 May 2025 11:45 (25 minutes)

Presenter: KOENIG, Sebastian (NC State University)

Session Classification: Morning Session 2

Contribution ID: 85

Type: **not specified**

Electromagnetic properties of atomic nuclei: the path to collectivity and the nature of pre-collective nuclei

Monday, 19 May 2025 12:10 (25 minutes)

Presenter: STUCHBERY, Andrew (The Australian National University)

Session Classification: Morning Session 2

Contribution ID: **86**

Type: **not specified**

Atomic nucleus at the edge of stability

Monday, 19 May 2025 12:35 (25 minutes)

Presenter: PLOSZAJCZAK, Marek

Session Classification: Morning Session 2

Contribution ID: 87

Type: **not specified**

Shape Coexistence in the $N=60$ isotopes in the Sr-Ru region

Monday, 19 May 2025 13:00 (25 minutes)

Presenter: GARRETT, Paul (University of Guelph)

Session Classification: Morning Session 2

Contribution ID: 88

Type: **not specified**

Collectivity, shape coexistence and isomerism in lanthanide nuclei close to the proton drip line

Monday, 19 May 2025 14:50 (25 minutes)

Presenter: PETRACHE, Costel (University Paris-Saclay, IJCLab-CNRS/IN2P3)

Session Classification: Afternoon Session 1

Contribution ID: 89

Type: **not specified**

Probing neutrinoless double-beta decay by nuclear observable

Monday, 19 May 2025 15:15 (25 minutes)

Presenter: JOKINIEMI, Lotta (TRIUMF / TU Darmstadt)

Session Classification: Afternoon Session 1

Contribution ID: 90

Type: **not specified**

The multi-shell connection between the fundamental structure models

Monday, 19 May 2025 15:40 (20 minutes)

Presenter: CSEH, Jozsef (HUN-REN Institute for Nuclear Research)

Session Classification: Afternoon Session 1

Contribution ID: **91**

Type: **not specified**

Ordinary Muon Capture of sd-shell nuclei within the Realistic Shell Model

Monday, 19 May 2025 16:00 (20 minutes)

Presenter: LYU, Songlin (Istituto Nazionale di Fisica Nucleare)

Session Classification: Afternoon Session 1

Contribution ID: 92

Type: **not specified**

While waiting for γ beams at ELI-NP: The ELIGANT campaigns at IFIN-HH and at ELI-NP

Monday, 19 May 2025 16:50 (25 minutes)

Presenter: BALABANSKI, Dimiter L. (Extreme Light Infrastructure - Nuclear Physics, IFIN-HH, Magurele, Romania)

Session Classification: Afternoon Session 2

Contribution ID: 93

Type: **not specified**

Algebraic treatment of α -cluster nuclei

Monday, 19 May 2025 17:15 (25 minutes)

Presenter: Dr BIJKER, Roelof (ICN-UNAM)

Session Classification: Afternoon Session 2

Contribution ID: 94

Type: **not specified**

Nuclear Structure Investigations in the $A \approx 30$ Mass Region

Monday, 19 May 2025 17:40 (25 minutes)

Presenter: TONEV, Dimitar (Institute for Nuclear Research and Nuclear Energy, Sofia, Bulgaria)

Session Classification: Afternoon Session 2

Contribution ID: 95

Type: **not specified**

Shell model understanding of nuclear isomerism

Monday, 19 May 2025 18:05 (20 minutes)

Presenter: MAHESHWARI, Bhoomika (GANIL, France)

Session Classification: Afternoon Session 2

Contribution ID: 96

Type: **not specified**

Taking Photos of the Nuclear Giant Dipole Resonance

Tuesday, 20 May 2025 09:00 (25 minutes)

Presenter: PIETRALLA, Norbert (TU Darmstadt)

Session Classification: Morning Session 1

Contribution ID: 97

Type: **not specified**

Improved Actions for Nuclear Effective Field Theories

Tuesday, 20 May 2025 09:25 (25 minutes)

Presenter: VAN KOLCK, Ubirajara (ECT*)

Session Classification: Morning Session 1

Contribution ID: 98

Type: **not specified**

Variational methods with symmetry constraints for application of quantum computers to nuclear physics

Tuesday, 20 May 2025 09:50 (25 minutes)

Presenter: Dr LACROIX, Denis (IJCLab-Paris Saclay University)

Session Classification: Morning Session 1

Contribution ID: 99

Type: **not specified**

Recent results within the sd and fpg shells

Tuesday, 20 May 2025 10:15 (25 minutes)

Presenter: ALLMOND, J.M. (Oak Ridge National Laboratory)

Session Classification: Morning Session 1

Contribution ID: **100**

Type: **not specified**

Nuclear electromagnetic properties from valence-space in-medium

Tuesday, 20 May 2025 10:40 (25 minutes)

Presenter: MIYAGI, Takayuki (University of Tsukuba)

Session Classification: Morning Session 1

Contribution ID: **101**

Type: **not specified**

A comprehensive view of nuclear shapes, rotations and vibrations from fully quantum mechanical perspectives

Tuesday, 20 May 2025 11:30 (25 minutes)

Presenter: OTSUKA, Takaharu (University of Tokyo, Tokyo, Japan)

Session Classification: Morning Session 2

Contribution ID: **102**

Type: **not specified**

Nuclear Structure Investigations at DESPEC

Tuesday, 20 May 2025 11:55 (25 minutes)

Presenter: GORSKA, Magdalena (GSI Darmstadt)

Session Classification: Morning Session 2

Contribution ID: **103**

Type: **not specified**

Pygmy resonance above excited states

Friday, 23 May 2025 09:00 (25 minutes)

Presenter: KVASIL, Jan (Institute of Particle and Nuclear Physics MFF Charles University, CZ-18000 Prague 8, V Holesovickach 2, Czech Republic)

Session Classification: Morning Session 1

Contribution ID: **104**

Type: **not specified**

Assessing Spectral Shape of Forbidden Beta Decays with ACCESS and ASSOLO

Tuesday, 20 May 2025 12:45 (25 minutes)

Presenter: Dr PAGNANINI, Lorenzo (Gran Sasso Science Institute & INFN - LNGS)

Session Classification: Morning Session 2

Contribution ID: **105**

Type: **not specified**

Precision nuclear theory

Tuesday, 20 May 2025 13:10 (25 minutes)

Presenter: FORSSÉN, Christian (Chalmers University of Technology)

Session Classification: Morning Session 2

Contribution ID: **106**

Type: **not specified**

Energy Density Functionals for nuclei and astrophysical applications

Tuesday, 20 May 2025 14:50 (25 minutes)

Presenter: COLO', Gianluca (Istituto Nazionale di Fisica Nucleare)

Session Classification: Afternoon Session 1

Contribution ID: **107**

Type: **not specified**

Exploring nuclear structure near ^{100}Sn with neutron knockout reactions

Tuesday, 20 May 2025 15:15 (25 minutes)

Presenter: GRAY, T. J. (Department of Physics and Astronomy, University of Tennessee Knoxville, Tennessee 37966, USA & Physics Division, Oak Ridge National Laboratory, Oak Ridge Tennessee 37831, USA)

Session Classification: Afternoon Session 1

Contribution ID: **108**

Type: **not specified**

Structure and electric dipole response of open-shell nuclei from coupled-cluster theory

Tuesday, 20 May 2025 15:40 (20 minutes)

Presenter: MARINO, Francesco

Session Classification: Afternoon Session 1

Contribution ID: **109**

Type: **not specified**

Resonances in ^{10}He and the $6n$ system studied using SAMURAI

Tuesday, 20 May 2025 16:00 (20 minutes)

Presenter: NASR, Omar (IJCLab)

Session Classification: Afternoon Session 1

Contribution ID: 110

Type: **not specified**

The NUMEN project: a new way to provide data-driven information on neutrino-less double-beta decay nuclear matrix element

Tuesday, 20 May 2025 16:50 (25 minutes)

Presenter: SPATAFORA, Alessandro (INFN-LNS and University of Catania)

Session Classification: Afternoon Session 2

Contribution ID: 111

Type: **not specified**

Recent progress in global optimizations of covariant energy density functionals

Tuesday, 20 May 2025 17:15 (25 minutes)

Presenter: AFANASJEV, Anatoli (Mississippi State University)

Session Classification: Afternoon Session 2

Contribution ID: 112

Type: **not specified**

Discrete Non-Orthogonal Shell Model: from mid-mass to heavy deformed nuclei

Tuesday, 20 May 2025 17:40 (20 minutes)

Presenter: DAO, Duy-Duc

Session Classification: Afternoon Session 2

Contribution ID: 113

Type: **not specified**

Ab Initio description of open-shell nuclei at polynomial cost

Tuesday, 20 May 2025 18:00 (20 minutes)

Presenter: SCALES, Alberto

Session Classification: Afternoon Session 2

Contribution ID: 114

Type: **not specified**

New findings on neutrinoless double beta decay nuclear matrix elements using IBM-2

Tuesday, 20 May 2025 18:20 (20 minutes)

Presenter: KAUPPINEN, Elina (University of Jyväskylä)

Session Classification: Afternoon Session 2

Contribution ID: 115

Type: **not specified**

Exploring α -induced reactions: Direct measurements and their impact on Nuclear Astrophysics

Wednesday, 21 May 2025 09:00 (25 minutes)

Presenter: AVILA CORONADO, Melina L. (Argonne National Laboratory, USA)

Session Classification: Morning Session 1

Contribution ID: **116**

Type: **not specified**

Present and future of the most sensitive techniques for double beta decay searches: an overview

Wednesday, 21 May 2025 09:25 (25 minutes)

Presenter: BIASSONI, Matteo (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 1

Contribution ID: **117**

Type: **not specified**

Isospin Symmetric Island of inversion at the $N=Z$ line

Wednesday, 21 May 2025 09:50 (25 minutes)

Presenter: NOWACKI, Frédéric

Session Classification: Morning Session 1

Contribution ID: **118**

Type: **not specified**

Toward simulating the nuclear shell model in a quantum computer

Wednesday, 21 May 2025 10:15 (25 minutes)

Presenter: MENENDEZ, Javier (University of Barcelona)

Session Classification: Morning Session 1

Contribution ID: **119**

Type: **not specified**

Exotic structures and double-magicity at the proton drip-line

Wednesday, 21 May 2025 10:40 (25 minutes)

Presenter: DE ANGELIS, Giacomo (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 1

Contribution ID: **120**

Type: **not specified**

Nuclear Structure near Particle Thresholds - Evidence from Nuclear Astrophysics

Wednesday, 21 May 2025 11:35 (25 minutes)

Presenter: WIESCHER, Michael (University of Notre Dame, USA)

Session Classification: Morning Session 2

Contribution ID: **121**

Type: **not specified**

Recent developments in electron scattering with quantum Monte Carlo methods

Wednesday, 21 May 2025 12:00 (25 minutes)

Presenter: KING, Garrett

Session Classification: Morning Session 2

Contribution ID: 122

Type: **not specified**

The AGATA campaign at LNL: nuclear structure from high-resolution γ -ray spectroscopy

Wednesday, 21 May 2025 12:25 (25 minutes)

Presenter: GOTTARDO, Andrea (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 2

Contribution ID: 123

Type: **not specified**

Probing two-body charge-exchange transition densities with heavy ion reactions

Wednesday, 21 May 2025 12:50 (25 minutes)

Presenter: COLONNA, Maria (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 2

Contribution ID: 124

Type: **not specified**

A new underground measurement of the $^{14}\text{N}(p,\gamma)^{15}\text{O}$ reaction at Bellotti Ion Beam Facility

Wednesday, 21 May 2025 13:15 (25 minutes)

Presenter: COMPAGNUCCI, Alessandro (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 2

Contribution ID: 125

Type: **not specified**

Gender equality in STEM careers

Thursday, 22 May 2025 08:45 (45 minutes)

Presenter: PIRRONE, Sara (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session

Contribution ID: 126

Type: **not specified**

Neutrinoless double-beta decay search with the LEGEND experiment

Thursday, 22 May 2025 09:30 (25 minutes)

Presenter: BRUGNERA, Riccardo (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 1

Contribution ID: 127

Type: **not specified**

Nuclear response functions with quantum (inspired) algorithms

Thursday, 22 May 2025 09:55 (25 minutes)

Presenter: ROGGERO, Alessandro (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 1

Contribution ID: 128

Type: **not specified**

A weak entanglement approximation for nuclear structure

Thursday, 22 May 2025 10:20 (25 minutes)

Presenter: JOHNSON, Calvin (San Diego State University)

Session Classification: Morning Session 1

Contribution ID: **129**

Type: **not specified**

Search for a neutron dark decay in ${}^6\text{He}$

Thursday, 22 May 2025 10:45 (25 minutes)

Presenter: SAVAJOLS, hervé (GANIL)

Session Classification: Morning Session 1

Contribution ID: 130

Type: **not specified**

Effective Field Theory approach for radiative corrections to superallowed beta decays

Thursday, 22 May 2025 11:40 (25 minutes)

Presenter: MEREGHETTI, emanuele (Los Alamos National Laboratory)

Session Classification: Morning Session 2

Contribution ID: 131

Type: **not specified**

Fast-timing lifetime measurements of exotic nuclei with a large LaBr₃(Ce) array: The first results from the IDATEN project

Thursday, 22 May 2025 12:05 (25 minutes)

Presenter: WATANABE, Hiroshi (Beihang University / Center for Exotic Nuclear Studies)

Session Classification: Morning Session 2

Contribution ID: 132

Type: **not specified**

Shape coexistence in the superheavy nucleus ^{286}No

Thursday, 22 May 2025 12:55 (25 minutes)

Presenter: RING, Peter (Physics Department, Technical University Munich, D-85748 Garching, Germany & State Key Laboratory of Nuclear Physics and Technology, School of Physics, Peking University, Beijing 100871, China)

Session Classification: Morning Session 2

Contribution ID: 133

Type: **not specified**

Ab initio calculations for nuclear astrophysics and searches for new physics

Thursday, 22 May 2025 12:30 (25 minutes)

Presenter: HOLT, Jason

Session Classification: Morning Session 2

Contribution ID: 134

Type: **not specified**

Exploring nuclear structures beyond mean-field using radioactive isotope beams

Thursday, 22 May 2025 14:45 (25 minutes)

Presenter: SUZUKI, Daisuke (Department of Physics, the University of Tokyo)

Session Classification: Afternoon Session 1

Contribution ID: 135

Type: **not specified**

Extended Random Phase Approximation (ERPA) with modern NN+NNN interactions

Thursday, 22 May 2025 15:10 (25 minutes)

Presenter: KNAPP, Frantisek (Institute of Particle and Nuclear Physics MFF Charles University, CZ-18000 Prague 8, V Holesovickach 2, Czech Republic)

Session Classification: Afternoon Session 1

Contribution ID: 136

Type: **not specified**

A Quantum Annealing Protocol to Solve the Nuclear Shell Model

Thursday, 22 May 2025 15:35 (20 minutes)

Presenter: COSTA, Emanuele (University of Barcelona)

Session Classification: Afternoon Session 1

Contribution ID: **137**

Type: **not specified**

Ab initio effective operator with continuum

Thursday, 22 May 2025 15:55 (20 minutes)

Presenter: XU, Zhicheng (Fudan University)

Session Classification: Afternoon Session 1

Contribution ID: **138**

Type: **not specified**

CUPID

Thursday, 22 May 2025 16:15 (25 minutes)

Presenter: PAVAN, Maura (Istituto Nazionale di Fisica Nucleare)

Session Classification: Afternoon Session 1

Contribution ID: 139

Type: **not specified**

Odd-mass Nb isotopes as a region of intertwined quantum phase transitions

Thursday, 22 May 2025 17:10 (25 minutes)

Presenter: Prof. LEVIATAN, Amiram (The Hebrew University)

Session Classification: Afternoon Session 2

Contribution ID: 140

Type: **not specified**

The first applications of the relativistic Second Tamm-Damncoff approximation in doubly-magic nuclei

Thursday, 22 May 2025 17:35 (20 minutes)

Presenter: VALE, Deni (Istrian University of Applied Sciences, Preradovićeve 9D, 52100 Pula, Croatia)

Session Classification: Afternoon Session 2

Contribution ID: **141**

Type: **not specified**

Shape coexistence in medium-mass nuclei

Thursday, 22 May 2025 17:55 (20 minutes)

Presenter: FRYCZ, Dorian (University of Barcelona)

Session Classification: Afternoon Session 2

Contribution ID: 142

Type: **not specified**

Some insights on the He-4 mysteries from a- scattering measurements

Thursday, 22 May 2025 18:15 (20 minutes)

Presenter: SOUKERAS, Vasileios (Istituto Nazionale di Fisica Nucleare)

Session Classification: Afternoon Session 2

Contribution ID: **143**

Type: **not specified**

Freedom in the chiral three-nucleon force at N³LO

Friday, 23 May 2025 09:25 (25 minutes)

Presenter: GIRLANDA, Luca (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 1

Contribution ID: 144

Type: **not specified**

Nuclear Physics under the low-energy, high intensity frontier

Friday, 23 May 2025 09:50 (25 minutes)

Presenter: YANG, Chieh-Jen

Session Classification: Morning Session 1

Contribution ID: 145

Type: **not specified**

Direct and two-step processes in single charge exchange reactions within a unified mode

Friday, 23 May 2025 10:15 (20 minutes)

Presenter: URAZBEKOV, Bakytzhan

Session Classification: Morning Session 1

Contribution ID: **146**

Type: **not specified**

Emulating hadronic matter in extreme conditions

Friday, 23 May 2025 10:35 (25 minutes)

Presenter: MANNARELLI, Massimo (Istituto Nazionale di Fisica Nucleare)

Session Classification: Morning Session 1

Contribution ID: 147

Type: **not specified**

Uncovering the mechanism of chiral three-nucleon force in driving spin-orbit splitting

Friday, 23 May 2025 11:00 (25 minutes)

Presenter: FUKUI, Tokuro (Kyushu University)

Session Classification: Morning Session 1

Contribution ID: **148**

Type: **not specified**

Description of Double Beta Decay within EMPM and STDA

Friday, 23 May 2025 11:55 (20 minutes)

Presenter: VESELY, Petr (Nuclear Physics Institute, Czech Academy of Sciences, 25068 Rez, Czech Republic)

Session Classification: Morning Session 2

Contribution ID: 149

Type: **not specified**

High-Precision Determination of Radiative Corrections to Superaligned Nuclear Beta Decays

Friday, 23 May 2025 12:15 (25 minutes)

Presenter: SENG, Chien Yeah (FRIB and University of Washington)

Session Classification: Morning Session 2

Contribution ID: **150**

Type: **not specified**

Approaching ^{100}Sn : Structural evolution in $^{98,100}\text{Cd}$ via lifetime measurements

Friday, 23 May 2025 12:40 (20 minutes)

Presenter: POLETTINI, Marta (GSI Helmholtzzentrum für Schwerionenforschung)

Session Classification: Morning Session 2

Contribution ID: 151

Type: **not specified**

Radioisotopes for monitoring the effects of Climate Change on marine Ecosystems: the REMO/ClimOcean project at SPES/LNL RIB facility

Friday, 23 May 2025 13:00 (20 minutes)

Presenter: ZENG, Fanfei

Session Classification: Morning Session 2

Contribution ID: **152**

Type: **not specified**

Few-nucleon correlations near and beyond the neutron drip-line

Tuesday, 20 May 2025 12:20 (25 minutes)

Presenter: UESAKA, Tomohiro

Session Classification: Morning Session 2