



IV International Conference on
Nuclear Structure and Dynamics • NSD2019

May 13-17, 2019 • Centro Culturale Don Orione Artigianelli, Venice • Italy

SCIENTIFIC PROGRAMME

Sunday, 12 May 2019

17:00 - 19:00 **Registration**

18:30 - 19:30 **Welcome Reception**

Monday, 13 May 2019

8:30 - 9:15 **Registration**

9:15 - 9:30 **Welcome Address** 15'

9:30 - 11:00 **Session I** – Chair: Giacomo de Angelis (INFN – LNL, Italy)

9:30 **Coulomb Excitation of Pear-shaped Nuclei** 30'
Peter Butler (Liverpool University, U.K.)

10:00 **Recent studies of heavy ion transfer reactions using large solid angle magnetic spectrometers** 30'
Suzana Szilner (RBI, Zagreb, Croatia)

10:30 **Experimental studies of neutron-rich nuclei around $N = 126$ at KEK isotope separation system** 30'
Yutaka Watanabe (KEK WSNC, Japan)

11:00 - 11:30 **Coffee break**

11:30 - 13:00 **Session II** – Chair: Norbert Pietralla (TU Darmstadt, Germany)

11:30 **Describing low-energy nuclear reactions with wave-packet dynamics** 30'
Alexis Diaz-Torres (Surrey University, U.K.)

12:00 **Nuclear spectroscopy with fast beams of rare isotopes** 30'
Alexandra Gade (MSU, USA)

12:30 **Performance and Recent Results with the Advanced GAMMA Tracking Array (AGATA)** 30'
Andres Gadea (IFIC CSIC, Valencia University, Spain)

13:15 - 15:00 **Lunch**

15:00 - 16:30 **Session III** – Chair: Wilton Catford (Surrey University, U.K.)

15:00 **An Analysis of the $^{18}\text{F}(d,p)^{19}\text{F}$ Reactions in the Rotational Model** 30'
Augusto Macchiavelli (LBNL, USA)

15:30 **Halo and unbound light nuclei from ab initio theory** 20'
Petr Navratil (TRIUMF, Canada)

15:50 **Analysis of excited states in ^{13}C and their cluster structure** 20'
Ivano Lombardo (INFN - Catania, Italy)

16:10 **Neutron Interaction with ^7Be at the SARAF: Evidence for Cluster Shell Model p-h States in ^8Be and Implication for Big Bang Nucleosynthesis** 20'
Moshe Gai (Connecticut University, USA)

16:30 - 17:00 **Coffee break**

17:00 - 18:30 **Session IV** – Chair: Fabiana Gramegna (INFN – LNL, Italy)

- 17:00 **Equilibration dynamics in nuclear reactions** 30'
Sait Umar (Vanderbilt University, USA)
- 17:30 **Phase transition dynamics in hot nuclei and N/Z influence** 20'
Bernard Borderie (CNRS, IPN Orsay, France)
- 17:50 **Isospin influence on the Intermediate Mass Fragments production at low energy** 20'
Sara Pirrone (INFN - Catania, Italy)
- 18:10 **Comparative study of four reactions at onset of pre-equilibrium emission** 20'
Magda Cicerchia (Padova University and INFN - LNL, Italy)

Tuesday, 14 May 2019

9:00 - 10:40 **Session V** – Chair: Peter Butler (Liverpool University, U.K.)

- 9:00 **Towards high-resolution in-beam gamma-ray spectroscopy at the RIBF** 30'
Kathrin Wimmer (Tokyo University, Japan)
- 9:30 **Decoherence of collective motion in warm nuclei** 30'
Stefan Frauendorf (Notre Dame University, USA)
- 10:00 **Nuclear structure studies based on energy density functionals** 20'
Tamara Niksic (Zagreb University, Croatia)
- 10:20 **Fission dynamics from saddle to scission and beyond** 20'
Aurel Bulgac (Washington University, USA)

10:40 - 11:10 **Coffee break**

11:10 - 12:40 **Session VI** – Chair: Alberto Stefanini (INFN – LNL, Italy)

- 11:10 **Fusion hindrance in light- and heavy-systems** 30'
Giovanna Montagnoli (Padova University and INFN, Italy)
- 11:40 **Fusion in massive stars: Pushing the $^{12}\text{C}+^{12}\text{C}$ cross-section to the limits with the STELLA experiment at IPN Orsay** 20'
David Jenkins (York University, U.K.)
- 12:00 **Finite-temperature nuclear response in the relativistic framework** 20'
Elena Litvinova (Western Michigan University and MSU, USA)
- 12:20 **Enhanced monopole and dipole transitions in medium-heavy nuclei induced by alpha cluster structures** 20'
Makoto Ito (Kansai University, Japan)

13:15 - 14:30 **Lunch**

Aula Magna

14:30 - 16:00	Session VII – Chair: José Javier Valiente Dobón (INFN – LNL, Italy)	
14:30	Building a coherent physics picture around $N=50$ towards ^{78}Ni Andrea Gottardo (INFN - LNL, Italy)	30'
15:00	In Flight and beta-delayed gamma-spectroscopy in the vicinity of ^{78}Ni with AGATA at GANIL and BEDO at ALTO Clement Delafosse (Jyväskylä University, Finland)	20'
15:20	Recent applications of the subtracted second random-phase Approximation Danilo Gambacurta (ELI-NP, Bucharest, Romania)	20'
15:40	Structural investigation of neutron deficient Pt isotopes: the case of ^{178}Pt Christoph Fransen (Cologne University, Germany)	20'
16:00 - 16:30	Coffee break	
16:30 - 17:40	Session VIII – Chair: Dariusz Seweryniak (ANL, U.S.A.)	
16:30	Shell evolution and shape coexistence in the ^{78}Ni region Eda Sahin (Oslo University, Norway)	30'
17:00	Transition probabilities in ^{54}Ti: Evolution of the shell structure of neutron-rich titanium isotopes Alina Goldkuhle (Cologne University, Germany)	20'
17:20	Collectivity in the vicinity of ^{78}Ni: Coulomb excitation of neutron-rich Zn at HIE-ISOLDE Andres Illana-Sison (INFN - LNL, Italy)	20'

Sala Goldoni

14:30 - 16:00	Session IX – Chair: Dieter Ackermann (GANIL, Caen, France)	
14:30	Time-Dependent Hartree-Fock Theory for Multinucleon Transfer Reactions Kazuyuki Sekizawa (Niigata University, Japan)	30'
15:00	From neutron-nucleus interactions to (d,p) cross sections Gregory Aguilar Potel (MSU, USA)	20'
15:20	Multinucleon transfer reactions and proton transfer channels Tea Mijatovic (RBI, Zagreb, Croatia)	20'
15:40	Role of charge equilibration in multinucleon transfer in damped collisions of heavy ions Vyacheslav Saiko (JINR, Dubna, Russia)	20'
16:00 - 16:30	Coffee break	
16:30 - 17:40	Session X – Chair: Huanqiao Zhang (CIAE Beijing, China)	
16:30	Short-range (pairing) versus long-range (collective) correlations in multi-particle transfer reactions Jesus Lubian Rios (Federal Fluminense University, Brasil)	30'
17:00	Structure and reactions of $N=7$ isotones: parity inversion and transfer cross sections Francisco Barranco (Sevilla University, Spain)	20'
17:20	The effect of the positive Q-value neutron transfers on near-barrier heavy-ion fusion Huiming Jia (CIAE, Beijing, China)	20'

Sala Vivaldi

14:40 - 16:00 **Session XI** – Chair: Michael Bentley (York University, U.K.)

- 14:40 **Beta decay of neutron-rich ^{135}In , ^{134}In and ^{133}In nuclei: gamma emission from neutron-unbound states in ^{134}Sn and ^{133}Sn** 20'
Monika Piersa (Warsaw University, Poland)
- 15:00 **Decay spectroscopy of isotopes above the fermium ($Z > 100$) at SHIP** 20'
Stanislav Antalic (Comenius University in Bratislava, Slovakia)
- 15:20 **Gamma and fast-timing spectroscopy of ^{132}Sn from the beta-decay of In isotopes** 20'
Jaime Benito Garcia (Complutense University, Madrid, Spain)
- 15:40 **Chirality and oblate rotation in nuclei: new achievements and perspectives** 20'
Costel Petrache (CSNSM, Paris Sud University and CNRS, France)

16:00 - 16:30 **Coffee break**

16:30 - 17:40 **Session XII** – Chair: Enrico Fioretto (INFN – LNL, Italy)

- 16:30 **Recent results from collinear resonance ionization spectroscopy (CRIS) at ISOLDE-CERN** 30'
Ronald Fernando Garcia-Ruiz (CERN, Switzerland)
- 17:00 **Fundamental properties of nuclear ground and isomeric states in neutron-deficient indium from laser spectroscopy** 20'
Christopher Ricketts (Manchester University, U.K.)
- 17:20 **Masses and Beta-Decay Spectroscopy of Neutron-Rich Nuclei: Isomers and Sub-shell Gaps with Large Deformation** 20'
Filip Kondev (ANL, USA)

17:40 - 19:15

P O S T E R S E S S I O N

Sala Palladio

with Wine&Cheese

Wednesday, 15 May 2019

9:00 - 10:40 **Session XIII** – Chair: Hans Geissel (GSI, Germany)

- 9:00 ***Nuclear structure studies via precision mass measurements*** 30'
Anu Kankainen (Jyväskylä University, Finland)
- 9:30 ***Neutrinoless double-beta decay and realistic shell model*** 30'
Nunzio Itaco (Campania University, Italy)
- 10:00 ***Reaction spectroscopy of Borromean nuclei shed light on the nuclear force and shell evolution*** 20'
Rituparna Kanungo (Saint Mary's University, TRIUMF, Canada)
- 10:20 ***Isospin Symmetry of the $A=46$ $T=1$ triplet studied with AGATA*** 20'
Michael Bentley (York University, U.K.)

10:40 - 11:10 **Coffee break**

11:10 - 13:00 **Session XIV** – Chair: Enrico Vigezzi (INFN – Milano, Italy)

- 11:10 ***Nuclear physics in stellar lifestyles with the Trojan Horse Method*** 30'
Aurora Tumino (Enna University and INFN - LNS, Italy)
- 11:40 ***Optical Potentials Derived from Nucleon-Nucleon Chiral Potentials at N4LO: Comparison between Phenomenological and Microscopic Optical Potentials*** 20'
Paolo Finelli (Bologna University and INFN, Italy)
- 12:00 ***Intertwined quantum phase transitions in the Zr isotopes*** 20'
Amiram Leviatan (The Hebrew University, Jerusalem, Israel)
- 12:20 ***Gamma spectroscopy of neutron-rich isotopes in the $A = 100$ region produced in fission induced by cold neutrons with new FIPPS array*** 20'
Lukasz Iskra (INFN - Milano, Italy)
- 12:40 ***Chiral three-body force and monopole properties of shell-model Hamiltonian*** 20'
Tokuro Fukui (INFN - Napoli, Italy)

13:15 - 14:15 **Lunch**

14:30 - 19:00 **Conference Tour**

Thursday, 16 May 2019

9:00 - 10:10 **Session XV** – Chair: Krzysztof Rusek (Warsaw University, Poland)

- 9:00 **Recent results on heavy-ion induced reactions of interest for neutrinoless double beta decay at INFN-LNS** 30'
Manuela Cavallaro (INFN - LNS, Italy)
- 9:30 **Single- and double-charge exchange excitations of spin-isospin mode** 20'
Hiroyuki Sagawa (Aizu University and RIKEN, Japan)
- 9:50 **Theory of Heavy Ion Single and Double Charge Exchange Reactions as Probes for Nuclear Beta Decay** 20'
Horst Lenske (Giessen University, Germany)

10:40 - 11:10 **Coffee break**

11:10 - 12:40 **Session XVI** – Chair: Horst Lenske (Giessen University, Germany)

- 11:10 **Systematic Search for Tetrahedral and Octahedral Symmetries In Subatomic Physics: Follow-up of the First-Discovery Case** 30'
Jerzy Dudek (CNRS, Strasbourg, France)
- 11:40 **A 21st Century View of Nuclear Structure** 20'
Jerry Draayer (Louisiana State University, USA)
- 12:00 **Pairing rotation and pairing energy density functional** 20'
Nobuo Hinohara (Tsukuba University, Japan)
- 12:20 **Skyrme functional with tensor terms from ab initio calculations in neutron-proton drops** 20'
Shihang Shen (Milano University and INFN, Italy)

13:15 - 14:15 **Lunch**

15:00 - 18:30 **PARALLEL SESSIONS**

Aula Magna	15:00 - 16:30	Session XVII – Chair: Daniele Mengoni (Padova University and INFN, Italy)	
	15:00	Coexistence and evolution of shapes: mean-field-based interacting boson model	30'
		Kosuke Nomura (JAEA, Japan)	
	15:30	Shape coexistence in ^{94}Zr studied via Coulomb Excitation	20'
		Naomi Marchini (Firenze University and INFN, Italy)	
	15:50	Shape evolution in exotic neutron-rich nuclei around mass 100	20'
		Saba Ansari (CEA Saclay, France)	
	16:10	Shape transitions between and within Zr isotopes	20'
		Volker Werner (TU Darmstadt, Germany)	
	16:30 - 17:00	Coffee break	
17:00 - 17:40	Session XVIII – Chair: Filip Kondev (ANL, USA)		
17:00	Neutron Skin Effects in Mirror Energy Differences: The Case of ^{23}Mg-^{23}Na	20'	
	Francesco Recchia (Padova University and INFN, Italy)		
17:20	Discovery of collective states in the heavy ^{208}Pb nucleus by complete spectroscopy	20'	
	Andreas Heusler (MPI, Heidelberg, Germany)		

Sala Goldoni

15:00 - 16:10	Session XIX – Chair: Marco Mazzocco (Padova University and INFN, Italy)	
15:00	Heavy ion fusion reactions in stars Xiaodong Tang (IMP, CAS, China)	30'
15:30	A possible nuclear solution to the ^{18}F deficiency in novae Marco Salvatore La Cognata (INFN - LNS, Italy)	20'
15:50	Forbidden transitions in nuclear weak processes relevant to neutrino detection, nucleosynthesis and evolution of stars Toshio Suzuki (Nihon University, Japan)	20'
16:30 - 17:00	Coffee break	
17:00 - 18:10	Session XX – Chair: Tommaso Marchi (INFN – LNL, Italy)	
17:00	Proton-neutron pairing and alpha-like quartet correlations in nuclei Nicolae Sandulescu (NIPNE, Bucharest, Romania)	30'
17:30	Quartet structure of self-conjugate nuclei Michelangelo Sambataro (INFN - Catania, Italy)	20'
17:50	Inverse thick target method in order to investigate alpha-clustering in ^{212}Po Maria Grazia Pellegriti (INFN - Catania)	20'

Sala Vivaldi

15:10 - 16:30	Session XXI – Chair: Matko Milin (Zagreb University, Croatia)	
15:10	Fusion Hindrance and Pauli Blocking in $^{58}\text{Ni} + ^{64}\text{Ni}$ Alberto Stefanini (INFN - LNL, Italy)	20'
15:30	Fusion probability of massive nuclei in reactions leading to heavy composite nuclear systems Roman Sagaidak (JINR, Dubna, Russia)	20'
15:50	Reactions with Exotic Nuclei at Near- and Sub-barrier Energies Chengjian Lin (CIAE, Beijing, China)	20'
16:10	Study of fusion mechanisms induced by weakly bound nuclei Gaolong Zhang (Beihang University, China)	20'
16:30 - 17:00	Coffee break	
17:00 - 18:30	Session XXII – Chair: Kathrin Wimmer (Tokyo University, Japan)	
17:00	How do we infer shell effects at high excitation energies? Nico Orce (Western Cape University, South Africa)	30'
17:30	Structure of neutron-rich Ge and Se isotopes Anne Marie Forney (Maryland University and College Park, USA)	20'
17:50	Spectroscopy of low-lying excited states of ^{50}Ar Martha Liliana Cortés Sua (INFN - LNL, Italy)	20'
18:10	Interplay between quadrupole and pairing correlations close to ^{100}Sn from lifetime measurements Marco Siciliano (CEA Saclay, France)	20'

20:00 - 22:30 **Conference Dinner**

Friday, 17 May 2019

9:00 - 10:40 **Session XXIII** – Chair: Claes Fahlander (Lund University, Sweden)

- 9:00 **Revealing microscopic origins of shape coexistence in the Ni isotopic chain** 30'
Silvia Leoni (Milano University and INFN, Italy)
- 9:30 **Nuclear structure physics with radioactive-ion beams at HIE-ISOLDE** 30'
Liam Gaffney (CERN, Switzerland)
- 10:00 **First high-precision measurement of the low-lying isovector M1 strength in ${}^6\text{Li}$ at the photon point** 20'
Norbert Pietralla (TU Darmstadt, Germany)
- 10:20 **Quest of octupole deformation in very light Te isotopes** 20'
Dimitry Testov (INFN - Padova, Italy)

10:40 - 11:10 **Coffee break**

11:10 - 13:00 **Session XXIV** – Chair: Lorenzo Corradi (INFN – LNL, Italy)

- 11:10 **Superallowed alpha decay to doubly magic ${}^{100}\text{Sn}$** 30'
Dariusz Seweryniak (ANL, USA)
- 11:40 **Challenging nuclear structure of the heaviest – opportunities at S^3** 20'
Dieter Ackermann (GANIL, Caen, France)
- 12:00 **Impact of quasi fission on SHE production** 20'
Mikhail Itkis (JINR, Dubna, Russia)
- 12:20 **Investigation of excited states in very heavy elements** 20'
Barbara Sulignano (CEA Saclay, France)
- 12:40 **High-momentum nucleons, Tensor blocking, and nuclear Shell Structure** 20'
Isao Tanihata (RCNP Osaka University, Japan and Beihang University, China)

13:15 - 14:15 **Lunch**

15:00 - 16:00 **Session XXV** – Chair: Giacomo de Angelis and Lorenzo Corradi (INFN – LNL, Italy)

- 15:00 **3rd poster winner presentation** 10'
- 15:10 **2nd poster winner presentation** 10'
- 15:20 **1st poster winner presentation** 10'
- 15:30 **Summary Talk** 30'
Dario Vretenar (Zagreb University, Croatia)
- 16:00 Closure

List of Posters

Id	Title and Presenter
15	Low-lying transition strengths in the neutron-deficient Te-isotopes Claus Müller-Gattermann (Cologne University, Germany)
39	Hidden symmetries in the HFB norm overlap functions Makito Oi (Senshu University, Japan)
43	Coulomb Energy Density Functionals for Nuclear Systems Tomoya Naito (Tokyo University and RIKEN, Japan)
46	Spectroscopy of natural parity states in ^{20}Ne via the $^{19}\text{F}(p, \alpha_0)$ and $^{19}\text{F}(p, \alpha_\pi)$ reactions at low energies Mariano Vigilante (Napoli University and INFN, Italy)
60	Study of high-energy fission and quasi-fission with inverse kinematics Giorgia Mantovani (Padova University and INFN – LNL, Italy)
61	The $^3\text{H}(\alpha, \gamma)^7\text{Li}$ and $^3\text{He}(\alpha, \gamma)^7\text{Be}$ radiative capture reactions at low and intermediate energies Alexander Solov'yev (VNIIA, Russia)
64	Three-body description of ^{12}C: From the hyperspherical formulation to the algebraic cluster model and its application to $\alpha+^{12}\text{C}$ inelastic scattering Jesus Casal (Padova University)
66	Penning-Trap assisted β-decay studies of ^{87}Br Jakub Wiśniewski (Warsaw University, Poland)
71	New investigations on the $^{32}\text{S}(^3\text{He}, d)^{33}\text{Cl}$ reaction at 9.6 MeV bombarding energy Marco Cinausero (INFN – LNL, Italy)
86	Effect of nuclear pairing on magnetic-dipole excitation Tomohiro Oishi (Zagreb University, Croatia)
94	Lights and (some) shadows in the comparison among experimental data of heavy ion collisions at Fermi energies and the dynamical model AMD Silvia Piantelli (INFN – Firenze, Italy)
95	Alpha correlation in term of the hyper-Pfaffian Takahiro Mizusaki (INS, Senshu University, Japan)
96	Spin Tensor Decomposition: A tool to develop an effective shell model interaction Pawan Kumar (IIT, Ropar, India)
101	Lifetime Measurements of Excited States in ^{146}Sm Thamer Alharbi (Majmaah University, Saudi Arabia)
103	Shape Coexistence in the Neutron-Deficient ^{188}Hg Isotope Irene Zanon (INFN – LNL, Italy)
115	Interesting states in $A=10$ mass region, populated in $^{10}\text{B} + ^{10}\text{B}$ nuclear reactions Deša Jelavić Malenica (RBI, Zagreb, Croatia)
120	^{16}N - unique first-forbidden beta decay as a novel test for fundamental symmetries Sergey Vaintraub (SNRC, Israel)
124	Lifetime measurements in ^{105}Sn Giorgia Pasqualato (INFN – Padova)
126	Proton distribution radii measurements of neutron-rich nitrogen isotopes Soumya Bagchi (GSI, Germany)
128	Four -particle decay of the excited $^{16}\text{O}^*$ quasi-projectile in the $^{16}\text{O} + ^{12}\text{C}$ reaction at 130 MeV Maria Vittoria Managlia (Bologna University, Italy)
138	Study of sub-barrier fusion of $^{36}\text{S}+^{50}\text{Ti}$, ^{51}V systems Giulia Colucci (Padova University and INFN, Italy)
151	Study of the neutron-rich region in the vicinity of ^{208}Pb via multinucleon transfer reactions Petra Colović (RBI, Zagreb, Croatia)
152	Recent developments of the description of fission Martin Albertsson (Lund university, Sweden)
158	Study of continuum excitation by light weakly bound projectiles on proton target Onoufriou Sgouros (INFN – LNS, Italy)
168	Lifetime measurement of nearly degenerate band in ^{126}I: Search for chiral geometry Himanshu Kumar Singh (IIT Bombay, India)
171	Investigation of mixed-symmetry states in ^{96}Mo Eleonora Teresia Gregor (INFN – LNL, Italy)
174	Proton emission in neutron deficient nuclei Manpreet Kaur (Institute of Physics, Bhubaneswar and HBNI, Mumbai, India)

- 178 **Total kinetic energy distributions for spontaneous fission of Rutherfordium isotopes**
Pavol Mosat (Comenius University in Bratislava, Slovakia)
- 187 **Calculations of Nuclear Matrix Elements (NMEs) of Neutrinoless Double Beta Decay using Spin-Tensor decomposition method of Nuclear Shell Model**
Shahariar Sarkar (IIT Ropar, India)
- 190 **Reactions with ${}^9\text{Li}$ at HIE-ISOLDE**
Jesper Jensen (Aarhus University, Denmark)
- 191 **Exploring nuclear structure and stellar helium burning with the HIGS Optical Time Projection Chamber**
Robin Smith (Sheffield Hallam University, U.K.)
- 195 **New Results on Excited States in the one-particle one-hole nucleus ${}^{56}\text{Co}$ measured with Miniball detectors**
Ana Montaner Pizá (Padova University and INFN, Italy)
- 198 **Rotational bands in triaxial nuclei**
Elena Lawrie (iThemba LABS, South Africa)
- 200 **Dipole Bands in ${}^{196}\text{Hg}$**
J.J. Lawrie (iThemba LABS, South Africa)