

12th INTERNATIONAL SPRING SEMINAR ON NUCLEAR PHYSICS
CURRENT PROBLEMS AND PROSPECTS FOR NUCLEAR STRUCTURE

SANT'ANGELO D'ISCHIA, MAY 15-19, 2017

PROGRAM

Monday, May 15

9:00 Opening Address

Chairperson: **C. H. Dasso** (*Sevilla*)

9:20 **A. Faessler** (*Tübingen*): Can one determine the neutrino mass by electron capture?
9:45 **M. J. Borge** (*Madrid*): Recent results from ISOLDE and HIE-ISOLDE
10:10 **H. Sagawa** (*Wako*): Three-body model for nuclei near and beyond neutron drip line
10:35 **J. Kvasil** (*Praha*): Elimination of the spurious admixtures in the QRPA E0, E1, E2 and M1 excitations of deformed nuclei

10:55 Coffee Break

Chairperson: **S. Lunardi** (*Padova*)

11:20 **F. Sammarruca** (*Moscow*): Chiral effective field theory and nucleonic matter
11:45 **P. Reiter** (*Köln*): Nuclear-structure physics with MINIBALL at HIE-ISOLDE
12:10 **A. Gal** (*Jerusalem*): Charge symmetry breaking in Λ hypernuclei
12:35 **C. Michelagnoli** (*Grenoble*): FIPPS - A new instrument for the spectroscopy of n-rich nuclei at ILL
12:55 **G. De Gregorio** (*Napoli*): Odd nuclei spectroscopy within a self-consistent multiphonon approach

13:15 Session close

Chairperson: **G. de Angelis** (*Legnaro*)

15:00 **J.D. Holt** (*Vancouver*): Extending ab initio nuclear structure to all light- and medium-mass nuclei
15:25 **J.J. Valiente Dobón** (*Legnaro*): Nuclear structure of moderately exotic nuclei populated via multinucleon transfer reactions
15:50 **F. Cappuzzello** (*Catania*): Recent results on nuclear structure at the INFN-LNS laboratory
16:10 **H. Heylen** (*Heidelberg*): The structure of exotic nuclei studied using collinear laser spectroscopy: Recent results from COLLAPS

16:30 Coffee Break

Chairperson: **N. Itaco** (*Napoli*)

16:55 **B.R. Barrett** (*Tucson*): The no core shell model in an effective field theory approach
17:20 **M. Horoi** (*Mount Pleasant*): Nuclear structure for double beta decay
17:45 **D. Carbone** (*Catania*): Nuclear structure studies performed using the ($^{18}\text{O}, ^{16}\text{O}$) two-neutron transfer reactions

18:05 Session close

Tuesday, May 16

Chairperson: **P. Reiter** (*Köln*):

- 9:00 **R. Machleidt** (*Moscow*): Consistent high-quality two-nucleon potentials up to fifth order of the chiral expansion
- 9:25 **T. Aumann** (*Darmstadt*): Quasifree (p,2p) knockout reactions with radioactive beams in inverse and complete kinematics at R3B
- 9:50 **G. de France** (*Caen*): The EXILL campaign
- 10:15 **S. Shlomo** (*College Station*): Short-range correlations effect on the single particle proton $3s_{1/2}$ wave function in ^{206}Pb
- 10:40 Coffee break

Chairperson: **M. J. Borge** (*Madrid*)

- 11:05 **U. van Kolck** (*Orsay*): Nuclear physics from an expansion around the unitarity limit
- 11:30 **C. Barbieri** (*Guildford*): Self-consistent Green's function computations of medium mass isotopes
- 11:55 **M. La Commara** (*Napoli*): $^8\text{B}+^{208}\text{Pb}$ elastic scattering at Coulomb barrier energies
- 12:15 **P. Pragati** (*Roorkee*): Competition between spherical and octupole deformation in ^{216}Fr
- 12:35 Session close

Wednesday, May 17

Chairperson: **R. Machleidt** (*Moscow*)

- 8:30 **B.A. Brown** (*East Lansing*): Nuclear matrix elements for double-beta decay of ^{76}Ge
8:55 **D. Balabanski** (*Bucharest*): Experiments with brilliant gamma beams at ELI-NP
9:20 **S. Bacca** (*Vancouver*): Electromagnetic reactions from coupled-cluster theory
9:45 **B. Fernández-Domínguez** (*Santiago de Compostela*): How sharp is the transition into the N=20 island of inversion for Mg isotopes?
10:05 **L.S. Ferreira** (*Lisboa*): New proton drip-line nuclei relevant to nuclear astrophysics
10:25 **Yu. M. Tchuviľ'sky** (*Moskva*): Ab initio calculations of one-nucleon halo states

10:45 Coffee Break

Chairperson: **L. Coraggio** (*Napoli*)

- 11:05 **F. Nowacki** (*Strasbourg*): Shell model far from stability: Islands of inversion mergers
11:30 **G. Benzoni** (*Milano*): Evolution of deformation in Ba isotopic chain
12:55 **M. Cavallaro** (*Catania*): Nuclear reactions for neutrinoless double beta decay
12:15 **W.A. Richter** (*Somerset West*): Shell-model studies of the $^{34g,m}\text{Cl}(p,\gamma)^{35}\text{Ar}$ rp reaction rates
12:35 **P. Gulshani** (*Mississauga*): A microscopic cranking model for uni-axial rotation and its connection to other collective models

12:55 Session close

Chairperson: **H. Witala** (*Kraków*)

- 14:40 **T. Otsuka** (*Tokyo*): Quantum self-organization and nuclear collectivities
15:05 **A. Andrighetto** (*Legnaro*): SPES: An intense source of neutron-rich radioactive beams at LEGNARO
15:30 **L. M. Fraile** (*Madrid*): Spying on intruders in the ^{68}Ni region
15:50 **K. Arnsward** (*Köln*): Enhanced collectivity along the N=Z line: Lifetime measurements in ^{44}Ti , ^{48}Cr , and ^{52}Fe
16:10 **T. Suzuki** (*Tokyo*): Structure of two-neutron halo in light drip-line nuclei
16:30 **S. Karampagia** (*East Lansing*): Low-energy magnetic radiation enhancement within the nuclear shell model

16:50 Coffee Break

Chairperson: **U. van Kolck** (*Orsay*)

- 17:15 **G. Hagen** (*Oak Ridge*): Coupled-cluster computations of atomic nuclei
17:40 **V. Zelevinsky** (*East Lansing*): Nuclear level density, thermalization, chaos and collectivity
18:05 **S.M. Lenzi** (*Padova*): The AGATA campaign in GANIL: Results and perspectives
18:30 **I. N. Gratchev** (*Grenoble*): The identification of excited states and collectivity of ^{88}Se
18:50 **J. Wilhelmy** (*Köln*): Investigation of the γ -decay behavior of $^{48,50}\text{Ti}$ and ^{52}Cr with the γ^3 setup at HlyS

19:10 Session close

Thursday, May 18

Chairperson: **J. N. Ginocchio** (*Los Alamos*)

- 9:00 **F. Iachello** (*New Haven*): Cluster structure of light nuclei
9:25 **M. Gai** (*Groton*): Experimental tests of the algebraic cluster model
9:50 **A. Heusler** (*Heidelberg*): Rotating and vibrating α -clusters in heavy nuclei
10:10 **V. Della Rocca** (*L'Aquila*): Cluster-shell model: Structure of ${}^9\text{Be}$, ${}^9\text{B}$
10:30 **A. Di Pietro** (*Catania*): Experimental investigation of exotic clustering in ${}^{13}\text{B}$ and ${}^{14}\text{C}$ using resonance scattering method
- 10:50 Coffee Break

Chairperson: **B.A. Brown** (*East Lansing*)

- 11:15 **P. Ring** (*München*): On the way to a microscopic derivation of covariant density functionals in nuclei
11:40 **F.R. Xu** (*Beijing*): Resonances of many-body nuclear systems
12:05 **P.E. Georgoudis** (*Jerusalem*): Aspects of shape coexistence in the geometric collective model
12:25 **N. Sandulescu** (*Bucharest*): Proton-neutron pairing and alpha-like quartet correlations in nuclei
12:45 **M. Sambataro** (*Catania*): Quartetting in even-even and odd-odd $N=Z$ nuclei
- 13:05 Session close

Chairperson: **F. Sammarruca** (*Moscow*):

- 14:40 **A. Vitturi** (*Padova*): Interplay of break-up and transfer processes in reactions involving weakly-bound systems: A simple one-dimensional model
15:05 **A. Jungclaus** (*Madrid*): Selected results from in-beam and decay γ -ray spectroscopy in the ${}^{132}\text{Sn}$ region performed at RIKEN
15:30 **V.O. Nesterenko** (*Dubna*): Dipole toroidal resonance: Vortical properties, possible origins of pygmy mode, anomalous deformation features
15:50 **Y. F. Niu** (*Bucharest*): Beyond mean-field description of Gamow-Teller resonance and β -decay in superfluid nuclei
16:10 **P. Vesely** (*Praha*): Recent applications of the equation of motion phonon method to even-even nuclei and exotic nuclear systems
- 16:30 Coffee Break

Chairperson: **G. Benzoni** (*Milano*)

- 16:55 **F. Recchia** (*Padova*): Neutron knockout from ${}^{68,70}\text{Ni}$ ground and isomeric states
17:15 **C. Parascandolo** (*Napoli*): Dynamical dipole mode in heavy-ion fusion reactions
17:35 **D. Gambacurta** (*Bucharest*): Subtraction method in the SRPA approximation with Skyrme and Gogny interactions
17:55 **J. Pei** (*Beijing*): Probing surface flows in deformed soft dipole modes
- 18:15 **Poster session**

Friday, May 19

Chairperson: **F. R. Xu** (*Beijing*)

- 09:00 **K. Langanke** (*Darmstadt*): The FAIR chance for nuclear astrophysics
09:25 **D. Hasell** (*Cambridge*): Hard two-photon contribution to elastic lepton-proton scattering determined by the OLYMPUS experiment
09:50 **N. Dinh Dang** (*Wako*): Role of exact pairing in the description of nuclear level density and radiative strength function
10:15 **S. Pastore** (*Los Alamos*): Fundamental physics with electroweak probes of nuclei
10:35 **R. Crespo** (*Lisboa*): Merging first principle studies and few-body reaction formalism for interpretation of RIB experiments
- 10:55 Coffee Break

Chairperson: **M. Gai** (*Groton*)

- 11:20 **N. Pietralla** (*Darmstadt*): Shell evolution and E2 collectivity: New spectroscopic information
11:45 **Y. Alhassid** (*New Haven*): The shell model Monte Carlo method: Recent developments and applications
12:10 **N. van Giai** (*Orsay*): Relativistic Hartree-Fock-Bogoliubov theory: Applications to spherical nuclei
12:35 **A. Zilges** (*Köln*): The low lying electric multipole response of nuclei: New experimental approaches
12:55 **J.M.G. Gómez** (*Madrid*): Experimental evidence of chaos in the bound states of ^{208}Pb
- 13:15 Session close

Chairperson: **A. Di Pietro** (*Catania*)

- 14:40 **C.M. Petrache** (*Orsay*): Exotic rotations in lanthanides
15:05 **A.A. Voinov** (*Dubna*): Study of the $^{249-251}\text{Cf}+^{48}\text{Ca}$ reactions: Recent results and outlook
15:25 **H. Naidja** (*Strasbourg*): Spectroscopic properties and collectivity in the nuclei above ^{132}Sn core
- 15:45 Coffee Break
- 16:10 **Discussion:** The role of nuclear structure towards the new frontier in nuclear physics
S. Bacca (*Vancouver*), **G. de Angelis** (*Legnaro*), **F. Iachello** (*New Haven*)
- 18:10 Session close