

## NEW QUESTS IN NUCLEAR STRUCTURE

VIETRI SUL MARE, MAY 21–25, 2010

## PRELIMINARY PROGRAM

## Friday, May 21

9:00 Opening address

**L. Merola**, Head, Sezione di Napoli of Istituto Nazionale di Fisica Nucleare**A. Covello**, Seminar ChairmanChairperson: **I. Talmi** (*Rehovot*)9:30 **D. Morrissey** (*Michigan State*): Status of the FRIB Project and a New Fragment Separator10:00 **J. Clark** (*Argonne*): Expansion of the Radioactive Ion Beam Program at Argonne10:30 **G. de Angelis** (*LNL, Legnaro*): Nuclear Structure Perspectives at LNL and the SPES Project

11:00 Coffee break

11:30 **P. Van Duppen** (*Leuven*): Status and Perspectives for RIB Research at REX- and HIE-ISOLDE12:00 **J. Uusitalo** (*Jyväskylä*): Probing Nuclei at the Limits of the Nuclear Landscape12:30 **I. Hamamoto** (*Lund*): Change of Shell Structure in Nuclei towards Neutron Drip Line12:50 **A. Vitturi** (*Padova*): Giant and Pygmy Dipole Resonances in Neutron-Rich Nuclei: Their Excitation via Coulomb and Nuclear Fields

13:10 Session close

Chairperson: **S. Lunardi** (*Padova*)15:00 **D. Rifuggiato** (*LNS, Catania*): Radioactive Ion Beam Facilities at INFN LNS15:30 **T. Suda** (*RIKEN*): Present status of RIKEN RI Beam Factory16:00 **T. Otsuka** (*Tokyo*): Shell Evolution in Exotic Nuclei

16:30 Coffee break

17:00 **T. Aumann** (*GSI*): Experiments with Radioactive Beams at GSI and FAIR17:30 **S. Gales** (*GANIL*): GANIL-SPIRAL2: A New Era18:00 **G. Royer** (*Nantes*): Mass Predictions of Exotic Nuclei within a Macro-Microscopic Model18:20 **M. G. Pellegriti** (*Catania*): Alpha Structure of  $^{12}\text{B}$  Studied by Elastic Scattering of  $^8\text{Li}$  EXCYT Beam on  $^4\text{He}$  Thick Target18:35 **V. Scuderi** (*Catania*): Structure Effects in the Reactions  $^{9,10,11}\text{Be}+^{64}\text{Zn}$  at the Coulomb Barrier

18:50 Session close

## Saturday, May 22

Chairperson: **A. Faessler** (*Tuebingen*)9:00 **R. Machleidt** (*Idaho*): Nuclear Forces from Chiral EFT: The Unfinished Business9:30 **T. T. S. Kuo** (*Stony Brook*): Effects of the Brown-Rho Scaling in Nuclear Matter, Neutron Stars and Finite Nuclei10:00 **B. Barrett** (*Tucson*): *Ab initio* Shell Model with a Core10:30 **R. Okamoto** (*Kitakyushu*): A New Iterative Equation for Effective Interaction

10:50 Coffee break

11:20 **F. Sammarruca** (*Idaho*): From Neutron Skins to Neutron Stars with a Microscopic Equation of State11:50 **G. Hagen** (*Oak Ridge*): Coupled Cluster Approach to Medium Mass and Neutron Rich Nuclei

12:10 **F. Nowacki** (*Strasbourg*): Nuclear Shell Evolution and In-Medium NN Interaction  
12:30 **J. D. Holt** (*Oak Ridge*): Three-Nucleon Forces for Medium-Mass, Neutron-Rich Nuclei

12:50 Session Close

Chairperson: **A. Poves** (*Madrid*)

15:00 **A. Covello** (*Napoli*): Shell-model Study of Exotic Nuclei above  $^{132}\text{Sn}$  with a Realistic Effective Interaction  
15:20 **N. Tsunoda** (*Tokyo*): Tensor Force in Effective Interaction of Nuclear Force  
15:40 **L. Coraggio** (*Napoli*): Realistic Shell-Model Calculation for Neutron-Rich Calcium Isotopes  
16:00 **G. Co'** (*Lecce*): Effective Tensor Forces and Neutron Rich Nuclei  
16:20 Coffee break  
16:50 **O. Sorlin** (*GANIL*): Evolution of Spin-Orbit Magic Numbers from Tensor, Spin-Orbit and Density Dependent Forces  
17:20 **N. Benczer-Koller** (*Rutgers*): The Past and Future of Magnetic Moment Measurements of Short-Lived Nuclear States  
17:50 **A. V. Ramayya** (*Vanderbilt*): Assignment of Single Particle Configurations in Odd-A Nuclei near  $A \approx 100$  with Angular Correlation Measurements  
18:10 **V. V. Voronov** (*Dubna*): A Separable Approximation for Skyrme Interactions and Charge-Exchange Excitations  
18:30 **D. Bianco** (*Napoli*): An Upgraded Algorithm for Shell Model Calculation and its Implementation in Medium-Heavy Nuclei  
18:50 **P. Veselý** (*Jyväskylä*): Finite-range Separable Pairing Interaction within New  $N^3\text{LO}$  DFT Approach  
19:05 Session close

### Sunday, May 23

Chairperson: **N. Lo Iudice** (*Napoli*)

9:00 **B. A. Brown** (*Michigan State*): Renormalized Interactions with EDF Single-Particle Basis States and NUSHELLX@MSU  
9:30 **I. Talmi** (*Rehovot*): Three-body Interactions in the Simple Shell Model ?  
9:50 **W. B. Walters** (*Maryland*): Proton Excitations, Collectivity, and the Benign  $p_{1/2}$  Neutron Orbital in  $^{67,69,71,73}\text{Cu}$   
10:10 **G. S. Simpson** (*Grenoble*):  $19/2^+$  Isomer of  $^{125}\text{Cd}$   
10:30 Coffee break  
11:00 **A. Poves** (*Madrid*): Nuclear Structure and the Neutrinoless Double Beta Decay  
11:30 **A. B. Balantekin** (*Wisconsin*): Symmetry and Supersymmetry in Nuclear Pairing: Exact Solutions  
12:00 **Y. Alhassid** (*New Haven*): Shell Model Monte Carlo Approach: The Heavy Nuclei  
12:20 **P. G. Bizzeti** (*Firenze*): Improved Method of Analysis for Recoil Distance Measurements of Nuclear Lifetimes  
12:35 Session close

### Monday, May 24

Chairperson: **A. V. Ramayya** (*Vanderbilt*)

9:00 **G. C. Ball** (*TRIUMF*): The TRIUMF-ISAC Radioactive Ion Beam (RIB) Facility: Recent Highlights and Future Plans  
9:30 **M. Hass** (*Rehovot*): Towards a Radioactive-Beam Trapping Experiment in Israel  
10:00 **B. Fornal** (*Kraków*): Neutron-Particle and Proton-Hole Excitations in the  $N=128$  Isotones  $^{208}\text{Hg}$  and  $^{209}\text{Tl}$  from Spectroscopy Following  $^{208}\text{Pb}+^{238}\text{U}$  Deep-Inelastic Reactions  
10:20 **S. M. Lenzi** (*Padova*): Structure of Neutron-Rich Nuclei near  $N=40$

10:40 Coffee break

11:10 **J. N. Ginocchio** (*Los Alamos*): Relativistic U(3) Symmetry and Pseudo-U(3) Symmetry of the Dirac Hamiltonian

11:30 **A. Heusler** (*Heidelberg*): High Resolution Particle Spectroscopy in  $^{208}\text{Pb}$  with the Q3D Magnetic Spectrograph of the Maier-Leibnitz-Laboratorium at München

11:50 **J. Cederkall** (*Lund*): Coulomb Excitation of Neutron Deficient Cd Isotopes

12:10 **M. Grasso** (*Orsay*): Tensor Effects in Shell Evolution at  $Z, N = 8, 20$  and  $28$  Using non Relativistic and Relativistic Mean Field

12:30 **S. Sarkar** (*Howrah*): New Phenomenon in Exotic Neutron-Rich Sn Isotopes: Role of 3-Body Force

12:50 **A. Leviatan** (*Jerusalem*): Deformed Pseudospin Doublets as a Relativistic Supersymmetry in Nuclei

13:10 Session close

Chairperson: **L. Ferreira** (*Lisboa*)

15:00 **N. Van Giai** (*Orsay*): Covariant Approach to Charge-Exchange Processes in Nuclei

15:20 **J. J. Valiente-Dobón** (*LNL, Legnaro*): Lifetime Measurements of Neutron-Rich Nuclei via Multi-Nucleon Transfer Reactions: Evidence of Orbital Dependence of the Effective Charges in the fp Shell

15:40 **N. Sandulescu** (*Bucharest*): Pairing Correlations in Nuclei: How Accurate are the BCS-Type Models?

16:00 **G. Thiamova** (*Grenoble*): The IBM Description of Triaxial Nuclei

16:20 **K. Sieja** (*Strasbourg*): Shell Evolution and Core Excitations in Semi-Magic Nickel and Tin Isotopes

16:35 Coffee break

17:05 **P. Ring** (*München*): Covariant Density Functional Theory with Spectroscopy Properties and a Microscopic Theory of Quantum Phase Transitions in Nuclei

17:25 **D. J. Rowe** (*Toronto*): Algebraic Paths to Understanding the Structure of Doubly-Open-Shell Nuclei

17:45 **Ch. Stoyanov** (*Sofia*): Valence Shell Excitations in Even-Even Spherical Nuclei within Microscopic Model

18:05 **M. Gai** (*Connecticut*): The Structure of  $^{12}\text{C}$  and Stellar Helium Burning

18:25 **F. Catara** (*Catania*): Collective Excitations in Random Phase Approximation and Beyond

18:45 **D. Tonev** (*Sofia*): Transition Rates in Mirror Nuclei  $^{31}\text{S}$  and  $^{31}\text{P}$ : A Test of Proton-Neutron

19:00 **A. Voinov** (*Dubna*): Study of the Complete Fusion Reaction  $^{226}\text{Ra}+^{48}\text{Ca}$

19:15 Session close

## Tuesday, May 25

Chairperson: **L. G. Moretto** (*Berkeley*)

9:00 **N. Dinh Dang** (*RIKEN*): Thermal Nuclear Pairing within the Selfconsistent Quasiparticle RPA

9:20 **K. Nomura** (*Tokyo*): New Formulation of the Interacting Boson Model and the Structure of Exotic Nuclei

9:40 **L. Ferreira** (*Lisboa*): The Structure of Exotic Nuclei at the Borders of Stability

10:00 **A. Dellafiore** (*Firenze*): Effects of Self-Consistency in Semiclassical Pairing Theory

10:20 **D. Gambacurta** (*Catania*): Second Random Phase Approximation with Skyrme Interaction

10:35 **M. Bökükat** (*Karikkale*): Quantum Phase Transition from Spherical to  $\gamma$ -Unstable for Bose-Fermi System

10:50 **A. Di Nitto** (*Napoli*): The Role of Isospin in Fusion-Evaporation Reactions

10:45 Coffee break

11:35 **D. L. Balabanski** (*Sofia*):  $E0$  Decay of the  $0_2^+$  Levels in  $^{156}\text{Dy}$  and  $^{160}\text{Er}$

11:55 **J. Kvasil** (*Prague*): Skyrme-RPA Description of Giant Resonances

12:15 **P. Kienle** (*München*): Time-Modulation of Two-Body Weak Decays with Massive Neutrinos

12:35 **N. Auerbach** (*Tel Aviv*): Doorway States, the Super-Radiant Mechanism and Nuclear Reactions

12:55 **F. Palumbo** (*Frascati*): Nuclear Physics from QCD

13:15 Session close

Chairperson: **P. Kienle** (*München*)

15:00 **A. Faessler** (*Tuebingen*): Nuclear Structure, the Double Beta Decay and the Neutrino Mass

15:30 **L. G. Moretto** (*Berkeley*): Lattice Animals, Fractality and Criticality in Hadronic and Partonic Systems

15:50 **J. M. G. Gómez** (*Madrid*): Recent Results in Quantum Chaos and its Applications to Nuclei and Particles

16:10 **J. Dudek** (*Strasbourg*): Statistical Significance and Predictive Power of Nuclear Theories

16:30 **B. Szpak** (*Kraków*): Nuclear Mean-Field Hamiltonians and their Spectroscopic Predictive Power

16:45 Coffee break

Chairperson: **A. Covello** (*Napoli*)

17:15 Round Table Discussion on “*Trends and Perspectives in Nuclear Structure*”: **N. Benczer-Koller, B. A. Brown, A. Faessler, B. Fornal, O. Sorlin, I. Talmi, P. Van Duppen**