

Zakopane Conference on Nuclear Physics

"Extremes of the Nuclear Landscape" August 31 – September 7, 2014, Zakopane, Poland

> http://zakopane2014.ifj.edu.pl e-mail: zakopane@ifj.edu.pl

Scientific Program

2014-08-26

Sunday, August 31 Welcome and Opening Talk

19:30 - 20:45

Marek Jeżabek, IFJ PAN Kraków

Welcome Address

Bradley Sherrill, Michigan State University (45 min)

"Prospects for Exploring the Extremes of the Nuclear Landscape"

Monday, September 1 *Nuclear Theory* Convener Witold Nazarewicz, MSU/ORNL

8:30 - 10:30

Nicolas Chamel, Université Libre de Bruxelles (30 min)

"Recent developments in the modeling of neutron-star crusts"

Stefano Gandolfi, Los Alamos (30 min)

"Microscopic calculations of Nuclear and Neutron Matter, Symmetry Energy and Neutron Stars"

Nils Paar, University of Zagreb (30 min)

"Nuclear Energy Density Functionals and Neutron Star Properties"

Hans-Werner Hammer, TU Darmstadt (30 min)

"Three-body forces: from cold atoms to nuclei"

11:00 - 13:00

Richard Furnstahl, Ohio State University (30 min)

"Effective Field Theory and Density Functionals"

Ionel Stetcu, Los Alamos National Laboratory (15 min)

"Nuclear structure and dynamics with density functional theory"

Gianluca Colo, University of Milan and INFN (30 min)

"The nuclear symmetry energy and other isovector observables from the point of view of nuclear structure"

Anatoli Afanasjev, Mississippi State University (30 min)

"Nuclear structure theory of the heaviest nuclei"

Hamidreza Moshfegh, University of Tehran (15 min)

"The symmetry energy of hot asymmetric nuclear matter"

Monday, September 1 Nuclear reactions

18:45 – 21:15

Valeriy Zagrebaev, JINR Dubna (25 min)

"Production of exotic nuclei in low-energy multi-nucleon transfer reactions"

Tea Mijatović, Ruđer Bošković Institute, Zagreb (15 min)

"Pairing correlation study in the ⁴⁰Ar + ²⁰⁸Pb multinucleon transfer reaction"

Diego Ramos, University Santiago de Compostela (15 min)

"Fission Yields of Minor Actinides at Low Excitation Energy Through Multi-Nucleon Transfer Reactions of ²³⁸U with Carbon"

Daniela Fabris, INFN Padova (15 min)

"Pre-equilibrium particles emission and its possible relation to alpha-clustering in nuclei"

Rakesh Kumar, IUAC New Delhi (15 min)

"Low energy incomplete fusion and the role of input angular momenta"

Izabela Ciepał, Jagiellonian University (15 min)

"Experimental Studies of the Coulomb Force Effects in Deuteron-Proton Breakup Reaction at Medium Energy Regime"

Sukhjit Kaur, Panjab University (15 min)

"Structural effects on the peak production of fragments"

Jelena Vesic, Jozef Stefan Institute, Ljubljana (15 min)

"Effect of electron screening on nuclear reaction rates"

Justyna Marganiec, TU Darmstadt (15 min)

"Coulomb dissociation of ²⁷P"

Tuesday, September 2 Nuclear Structure at High Spins - New Developments and Perspectives Convener John Simpson, STFC Daresbury

8:30 - 10:30

Ingemar Ragnarsson, Lund University (25 min)

"Theoretical overview of exotic shapes at the highest spins"

Adam Maj, IFJ PAN Kraków (25 min)

"Studies of very elongated nuclear shapes in hot nuclei at very high spins - status and new opportunities with RIBs"

Eddie Paul, University of Liverpool (25 min) "Recent Results at Ultrahigh Spin: Terminating States and Beyond in Mass 160 Rare-Earth Nuclei"

Yang Sun, Shanghai Jiao Tong University (15 min)

"High-spin physics with the projected shell model"

Navin Alahari, GANIL (25 min)

"First steps towards accessing the high Isospin-Spin frontier"

Tuesday, September 2 New Results and Opportunities at Radioactive Ion Beam Facilities Convener Tohru Motobayashi, RIKEN

11:00 - 13:00

Magdalena Górska, GSI (25 min)

"The last Prespec Agata campaign"

Peter Doornenbal, RIKEN (25 min)

"Overview of In-Beam Gamma-Ray Spectroscopy at the RIBF"

Paweł Napiorkowski, SLCJ Warszawa (25 min)

"Coulomb excitation for quadrupole moments measurements"

Thomas Henry, University of York (15 min)

"Mirror Spectroscopy in the upper fp shell with GRETINA"

Bondili Nara Singh, University of York (15 min)

"A shape study of ⁷²Kr using the REX-ISOLDE/Miniball set-up"

Ivan Budinčević, KU Leuven (15 min)

"Collinear Resonance Ionization Spectroscopy of francium isotopes towards the limits of stability"

Tuesday, September 2 Collective Excitation Modes Convener Angela Bracco, INFN and University of Milan

15:00 - 17:40

Maria Kmiecik, IFJ PAN Kraków (25 min)

"GDR width evolution at extreme temperatures"

Remco Zegers, Michigan State University (25 min)

"Studies of Gamow-Teller strengths at NSCL and applications in astrophysics and neutrino physics"

Konstanze Boretzky, GSI Darmstadt (25 min)

"PDR and Dipole Polarizability Studies at GSI"

Fabio Crespi, INFN and University of Milan (25 min)

"Isospin Character of Low-Lying Pygmy Dipole States via Inelastic Scattering of ¹⁷O"

Ann-Cecilie Larsen, University of Oslo (15 min)

"Upbend and M1 scissors mode in neutron-rich nuclei – consequences for r-process (n,y) reaction rates"

Sunniva Siem, University of Oslo (15 min)

"Statistical properties of warm nuclei – Observation of a first order pairing phase transition in atomic nuclei"

Simone Ceruti, University of Milano (15 min)

"Isospin mixing in ⁸⁰Zr at finite temperature"

Nikolay Arsenyev, JINR Dubna (15 min)

"Effects of phonon-phonon coupling on properties of pygmy resonances in ¹²⁴⁻¹³²Sn"

Tuesday, September 2 Poster session

19:30 – 21:00

Wednesday, September 3 Direct Reaction Studies with Radioactive Ion Beams Convener Jolie Cizewski, Rutgers University

8:30 – 10:30

Jolie Cizewski, Rutgers University (15 min)

"Overview of theoretical and experimental nuclear reaction studies with radioactive ion beams"

Wilton Catford, University of Surrey (30 min)

"Migration of Magic Numbers: Structure of ²⁶Na via a novel technique using (d, p) with a radioactive ²⁵Na beam"

Kate Jones, University of Tennessee (30 min) "Recent direct reaction experimental studies with heavy-mass radioactive ion beams"

Francesca Renzi, KU Leuven (15 min) "Spectroscopy of ⁷He by ⁶He(⁹Be, ⁸Be) transfer reaction"

Guillermo Ribeiro, IEM CSIC Madrid (15 min)

"Study of the unbound ¹³Be resonance in a (p, 2p) reaction at GSI"

Pavel Sharov, JINR Dubna (15 min)

"Population of ¹⁰He continuum in knockout reactions"

Wednesday, September 3 Super-heavy Nuclei Convener Dieter Ackermann, GSI

11:00 - 13:00

Yuri Oganessian, JINR Dubna (30 min)

"Nuclei at the End of the Periodic Table"

Kosuke Morita, Kyushu University and RIKEN (30 min)

"Research on Superheavy Element at RIKEN: Status and Perspective"

Andreas Türler, Paul Scherrer Institute and University of Bern (30 min) "Recent results from the field of superheavy element research"

Dariusz Seweryniak, Argonne National Laboratory (30 min)

"Spectroscopy of very heavy nuclei at ATLAS"

Wednesday, September 3 Super-heavy Nuclei and Fission 18:45 - 21:10

Adam Sobiczewski, NCBJ Warsaw (25 min)

"Theoretical description of decay chains of the element 115"

Mikael Sandzelius, University of Jyväskylä (15 min)

"Prompt In-beam Conversion Electron and γ-ray Spectroscopy at the Limit Using the SAGE Spectrometer"

Lorant Csige, ATOMKI Debrecen (15 min)

"Transmission resonance spectroscopy of the doubly odd ²³⁸Np in (d, pf) reaction"

Michał Kowal, NCBJ Warsaw (15 min)

"Configuration constrained calculations of the potential energy surfaces (PES's) - search for superheavy Kisomers"

Anna Bezbakh, JINR Dubna (15 min)

"Level Densities of Heaviest Nuclei"

Andreina Chietera, IPHC Strasbourg (15 min)

"Neutron emission anisotropy in fission"

Katarzyna Mazurek, IFJ PAN Kraków (15 min)

"Spontaneous fission of ²³⁸U from the self-consistent collective action"

Eugeny Ryabov, Omsk State University (15 min)

"Analysis of experimental data from fussion-fission reactions within four-dimensional Langevin dynamics"

Jean-Francois Lemaitre, CEA/DSM/Irfu Saclay (15 min)

"Nuclear fission modeling with SPY"

Thursday, September 4 New Results and Opportunities at RIB II

8:30 - 11:15

Tomohiro Uesaka, RIKEN (25 min) "RIKEN RIBF overview"

Marek Lewitowicz, GANIL (25 min) "GANIL/SPIRAL 2 – status and future"

Fabiana Gramegna, Legnaro (25 min) "Status of the SPES facility: technological challenges and First Day Scientific Program"

Magda Zielińska, CEA Saclay (15 min) "Deformation of ⁹⁷Rb studied by low-energy Coulomb excitation"

Tom Alexander, University of Surrey (15 min) "Coulomb Excitation of ²⁰⁶Hg with AGATA at GSI "

Malin Klintefjord, University of Oslo (15 min)

"Shape transition and coexistence in ¹⁴⁰Sm"

Jack Henderson, University of York (15 min) "First spectroscopy of excited states in the drip-line nuclide ⁷⁴Sr"

Philipp John, University of Padova and INFN (15 min) "Shape evolution in the neutron-rich Osmium isotopes: prompt γ -ray spectroscopy of ¹⁹⁶Os"

Callum Shand, University of Surrey (15 min) "Structure of ²⁰⁷Pb Populated in Deep-Inelastic Collisions"

Friday, September 5 Shell Structure at the Extremes of Nuclear Landscape Convener Bogdan Fornal, IFJ PAN Kraków

8:30 - 10:30

Allan Wuosmaa, University of Connecticut (30 min)

"Light neutron-rich nuclei at and around N=8"

Robert Janssens, Argonne National Laboratory (30 min)

"Evolution of Shell Structure in Neutron-Rich Nuclei from Ca to Ni"

Gilbert Duchene, IPHC Strasbourg (15 min)

"Structure beyond the N=50 shell closure in neutron-rich nuclei in the vicinity of ⁷⁸Ni: The case of N=51 nuclei"

Silvia Leoni, INFN and University of Milan (30 min)

"Particle-core couplings close to neutron-rich doubly-magic nuclei"

Giovanni Bocchi, University of Milano and INFN (15 min)

"Study of Ca isotopes via neutron capture reactions"

Friday, September 5 Beta-decay Studies of Exotic Nuclei Convener Berta Rubio, University of Valencia

11:00 - 13:00

Maria Borge, IEM Madrid (25 min)

"Exotic decays in light nuclei"

Yoshitaka Fujita, Osaka University (25 min) "Gamow-Teller Excitations Studied by the Weak and Strong Interactions"

Alejandro Algora, University of Valencia (25 min) "Beta decay studies using Total Absorption Spectroscopy"

Vandana Nanal, TIFR Mumbai (25 min)

"Search for Neutrinoless Double Beta Decay in ¹²⁴Sn"

Paul Davies, University of York (15 min)

" β -decay study of 16+ and 9+ spin-gap isomers in 96 Cd and 98 In"

Friday, September 5 Nuclear Structure

15:30 - 17:45

Bo Cederwall, KTH Stockholm (25 min)

"Neutron-Proton Pair Correlations in N=Z Nuclei Approaching ¹⁰⁰Sn"

Houda Naïdja, IPHC Strasbourg (15 min)

"Shell-model studies of the neutron rich nuclei beyond ¹³²Sn"

Timur Shneidman, JINR Dubna (15 min)

"Cluster effects in the structure of ⁴⁴Ti"

Andrzej Staszczak, UMCS Lublin (15 min)

"A Region of Rotating Toroidal Isomers"

Obed Shirinda, iThemba Labs (15 min)

"Multiple chiral bands associated with the same strongly asymmetric many-particle nucleon configuration"

Tomasz Marchlewski, University of Warsaw (15 min)

"Spontaneous time-reversal symmetry breaking in ¹²⁴Cs – First observation of a critical frequency"

Robert Carroll, University of Surrey (15 min)

"Blurring the boundaries of the nuclear landscape with multiparticle spin-trap isomers at the proton drip line"

Dimitar Tarpanov, University of Warsaw (15 min)

"Spectroscopic properties of energy density functionals"

Friday, September 5 Beta-decay Studies of Exotic Nuclei II 18:45 - 21:10

Miguel Madurga, CERN Isolde (25 min)

"β-delayed Neutron Spectroscopy of Ga Isotopes with VANDLE"

Sonja Orrigo, IFIC CSIC University of Valencia (15 min)

"First observation of beta-delayed gamma-proton decay in the fp-shell, the Beta decay of ⁵⁶Zn"

Agnieszka Czeszumska, LLNL and University of California, Berkeley (15 min)

"Beta-Delayed Neutron Spectroscopy with Trapped Fission Products"

Giuseppe Lorusso, RIKEN Nishina Center (15 min)

"Measurement of 20 new β -decay half-lives into the r-process path and the physical conditions of the r-process"

Chiara Mazzocchi, University of Warsaw (15 min)

"Beta decay of the most neutron-rich isotopes close to ⁷⁸Ni"

Krzysztof Miernik, University of Warsaw (15 min)

"Experimental observation of a large Beta-delayed two-neutron emission probability in the decay of ⁸⁶Ga"

Asénath Etilé, CSNSM Orsay (15 min)

"Structure of the odd-odd N=49 isotope ⁸²As from beta-decay: first evidence of low lying intruder states"

Marek Karny, University of Warsaw (15 min)

"Beta decay measurements of ⁸⁶Br, ⁸⁹Kr, and ¹³⁹Xe by means of Modular Total Absorption Spectrometer"

Frank Browne, University of Brighton (15 min)

"Gamma-ray spectroscopy in the vicinity of ¹⁰⁸Zr"

Saturday, September 6 Beyond Nuclear Physics Convener Sydney Gales, ELI-NP

8:30 - 11:00

Michel Spiro, CEA Saclay (30 min)

"Dark Matter, Dark Energy and the Future of High Energy Physics"

Andrzej Rybicki, IFJ PAN Kraków (15 min)

"Using the nuclear remnants as a new source of information on the space-time evolution of ultrarelativistic heavy ion collisions"

Calin Ur, ELI-NP Bucharest-Magurele (30 min) "New frontiers in Nuclear Physics research at ELI–NP"

Sylvain David, IPN Orsay (30 min)

"Future scenarios for fission based reactors: breeding and waste transmutation using U or Th cycle"

Aleksandra Wrońska, Jagiellonian University (15 min)

"Gamma emission in hadron therapy – experimental approach"

Sydney Gales, ELI-NP Bucharest-Magurele (30 min)

"Physics against cancer: NUPECC report on Nuclear medicine"

Saturday, September 6 Closing Talk

11:30 - 12:15

Aleksander Wolszczan, Pennsylvania State University (45 min)

"The astronomical future of humankind"