

# Detailed program of the Zakopane Conference 2018

**Sunday, August 28<sup>th</sup>**

**15:00 – 18:00**    Arrival of Conference participants

**18:00 – 19:00**     Dinner

## Welcome and Opening Talks

**19:00 – 21:00**

**19:00**    **Opening of the Conference**

**Marek Jeżabek, IFJ PAN Kraków**  
Welcome Address

**19:10**    **Gianluca Colo, INFN and University of Milan**

Nuclear structure theory: a brief and personal view on status and perspectives

**19:50**    **Marek Lewitowicz, GANIL, Caen**

Experimental nuclear physics in Europe: recent achievements and future plans

**20:30**     Welcome reception

**Monday, August 27<sup>th</sup>**

**Forefront Topics in Nuclear Theory**

**08:30 – 13:00**

**Convener Witold Nazarewicz**

**8:30 Jorge Piekarewicz, FSU, Tallahassee**

Nuclear physics and astrophysics in the multimessenger era: a partnership made in heaven

**9:00 Dean Lee, MSU, East Lansing**

From nuclear forces and effective field theory to nuclear structure and reactions

**9:30 Andreas Ekström, Chalmers, Gothenburg**

Chiral forces for atomic nuclei

**10:00 Michał Warda, UMCS, Lublin**

Super asymmetric fission in super heavy nuclei and cluster radioactivity

**10:30  Coffee Break**

**11:00 Sonia Bacca, JGU, Mainz**

Electromagnetic response of nuclei: from few- to many-body systems

**11:30 Bastian Schütrumpf, TU, Darmstadt**

Time-dependent DFT applications to nuclear vibrations and heavy-ion collisions

**12:00 Nikolay Arsenyev, JINR, Dubna,**

Proton-neutron structure of first and second quadrupole excitations of  $^{132,134,136}\text{Te}$

**12:15 Tiia Haverinen, University of Jyväskylä,**

Novel energy density functional for beyond-mean-field calculations with pairing and deformation

**12:30 Paweł Bączyk, University of Warsaw**

On the character of isospin-symmetry-breaking effects

**12:45 Jun Terasaki, CTU, Prague,**

Determination of strength of isoscalar pairing interaction by a mathematical identity in QRPA

**14:00  Hiking Trip**

## Monday, August 27<sup>th</sup>

19:00 – 21:30


- 19:00 Andreas Oberstedt, ELI-NP, Bucarest,**  
Systematic studies of fission fragment de-excitation by prompt  $\gamma$ -ray emission
- 19:30 Simone Bottoni, INFN and University of Milan,**  
Valence particle/hole core couplings
- 19:45 Arshiya Sood, IIT, Ropar,**  
Nuclear Structure effects on fission fragment mass distribution in  $^{12}\text{C}+^{169}\text{Tm}$  system
- 20:00 Nikola Jovancevič, IPN, Orsay,**  
Neutron induced reactions gamma spectroscopy by the  $\nu$ -BALL spectrometer
- 20:15 Giovanni Casini, INFN, Firenze,**  
Precise study of evaporation decay of light nuclei formed in fusion-like reactions
- 20:30 Grzegorz Kamiński, JINR, Dubna,**  
ACCULINNA-2: a new perspectives for studies with light radioactive ion beams at Dubna
- 20:45 Antoni Marcinek, IFJ PAN, Kraków,**  
What shall we do with the spectator system in ultrarelativistic heavy ion collisions ?

## Tuesday, August 28<sup>th</sup>

### New Instrumentation and Techniques in Nuclear Spectroscopy

08:30 – 10:30

Convener Johan Nyberg


- 8:30 Juha Uusitalo, University of Jyväskylä,**  
MARA, a recently commissioned in-flight separator for nuclear spectroscopy studies at JYFL-ACCLAB
- 9:00 Andres Gadea, IFIC, CSIC-University of Valencia,**  
The Advanced GAMMA Tracking Array (AGATA)
- 9:30 Par-Anders Söderström, ELI-NP, Bucarest,**  
High-resolution  $\gamma$ -ray spectroscopy with ELIADe at the Extreme Light Infrastructure
- 10:00 Partha Chowdhury, University of Massachusetts, Lowell,**  
C'LYC: a new scintillator for fast neutron spectroscopy
- 10:30  Coffee Break**

**Tuesday, August 28<sup>th</sup>**

**Interdisciplinary Applications of Nuclear Physics**

**11:00 – 13:00**

**Convener Nicolas Alamanos**

- 11:00 Sylvie Leray, CEA, Saclay**  
Nuclear physics for nuclear energy
- 11:30 Krzysztof Kilian, HIL, University of Warsaw,**  
Separation of scandium from solid targets for PET principles and experience
- 12:00 Karl Johnston, CERN, Genève,**  
Applications of physics of radioactive nuclei to material science and medicine
- 12:30 Renata Kopeć, IFJ PAN, Kraków,**  
Nuclear physics and proton radiotherapy at Cyclotron Centre Bronowice
- 12:45 Kamil Kisielewicz, COOK, Kraków,**  
Evaluation of usefulness of dual energy CT in radiotherapy panning for patients with hip endoprosthesis
- 14:00  Hiking Trip**

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**Parallel session A**

**15:30 – 17:30**

- 15:30 Andrzej Wilczek, University of Silesia, Katowice,**  
The quest for new data on the Space Star Anomaly in pd breakup
- 15:45 Angelina Rusnok, University of Silesia, Katowice,**  
Measurement of the differential cross section for proton induced deuteron breakup at 108 MeV
- 16:00 Yuriy Volkotrub, Jagiellonian University, Kraków,**  
Theoretical uncertainties in the description of the nucleon-deuteron elastic scattering up to 200 MeV
- 16:15 Kacper Topolnicki, Jagiellonian University, Kraków,**  
Few nucleon systems without partial wave decomposition
- 16:30 V. Chudoba, JINR, Dubna,**  
Three-body correlations in direct reactions: Example of  ${}^6\text{Be}$  populated in (p, n) reaction
- 16:45 Indranil Mazumdar, TIFR, Mumbai,**  
Studies in nuclear structure & Big Bang Nucleosynthesis using proton beam
- 17:00 Myung-Ki Cheoun, Soongsil University, Seoul,**  
The neutrino self-interaction and MSW effects on the neutrino-process for supernovae
- 17:15 Ivano Lombardo, INFN, Catania,**  
The role of  ${}^{20}\text{Ne}$  states in the astrophysical important  ${}^{19}\text{F}(p,\alpha){}^{16}\text{O}$  reaction at low energy

**Tuesday, August 28<sup>th</sup>**

**Parallel session B**

**15:30 – 17:30**

- 15:30 Deqing Fang, SINAP CAS, Shanghai,**  
Studies on the two-proton emission from the IAS states of  $^{22}\text{Mg}$
- 15:45 Thomas Goigoux, CEA, Saclay,**  
Two-proton radioactivity of  $^{67}\text{Kr}$
- 16:00 Daria Kostyleva, Justus-Liebig-Universität, Giessen**  
Towards the limits of nuclear structure along the proton-unbound argon and chlorine isotopes
- 16:15 Marek Stryczyk, KU, Leuven,**  
Shape coexistence in  $^{66}\text{Ni}$  probed through  $\beta$  decay
- 16:30 Agi Koszorus, KU, Leuven,**  
Ground state structure of  $^{52}\text{K}$  from collinear resonance ionization spectroscopy
- 16:45 Panu Ruotsalainen, University of Jyväskylä,**  
Isospin symmetry in the lower sd shell: Coulomb excitation study of  $^{21}\text{Mg}$
- 17:00 Mansi Saxena, HIL, University of Warsaw,**  
 $^{120}\text{Te}$  – Collapse of the vibrational picture
- 17:15 Magdalena Matejska – Minda, IFJ PAN, Kraków,**  
Coulomb excitation of  $^{45}\text{Sc}$

**19:00 – 21:30 Poster Session**

## Wednesday, August 29<sup>th</sup>

### Nuclear Rotation and High Spins

8:30 – 10:30

Convener John Sharpey-Schafer

**8:30 David Joss, University of Liverpool,**  
Emergence of collective excitations and deformed shapes in heavy neutron-deficient (N~90) nuclei

**9:00 Ingemar Ragnarsson, Lund University,**  
Interpretation of high-spin bands within the cranked Nilsson-Strutinsky formalism.

**9:30 Matthieu Lebois, IPN, Orsay,**  
The v-ball campaign at ALTO

**9:45 Damian Ralet, GANIL, Caen,**  
Search of two-phonon-octupole state in the vicinity of <sup>208</sup>Pb

**10:00 Guillaume Häfner, IKP, University of Cologne,**  
Properties of  $\gamma$ -decaying isomers in the <sup>100</sup>Sn region revisited

**10:15 B.S. Nara Singh, University of Manchester,**  
Study of isospin symmetry in the A=50 isobaric triplet

**10:30**  **Coffee Break**

### Collective Modes in Nuclei

11:00 – 13:00

Convener Adam Maj

**11:00 Angela Bracco, INFN and University of Milan,**  
Gamma decay from electric dipole excitations

**11:30 Muhsin Harakeh, KVI-CART and GANIL,**  
Recent studies of the monopole and dipole response in nuclei

**12:00 Peter von Neumann-Cosel, TU, Darmstadt,**  
Fine structure of giant resonances – what can be learned

**12:30 Domenico Santonocito, INFN–LNS, Catania,**  
Mapping the GDR quenching in nuclei of mass region A = 120-132

**14:00**  **Hiking Trip**

## Wednesday, August 29<sup>th</sup>

### Collective Modes in Nuclei

19:00 – 21:30


- 19:00 Hideyuki Sakai, RIKEN, Saitama,**  
Study of IVSM giant resonances via the exothermic reaction
- 19:25 Iyabo Usman, WITS, Johannesburg,**  
Evolution of the IVGDR and its fine structure from doubly-magic  $^{40}\text{Ca}$  to neutron rich  $^{48}\text{Ca}$  probed using  $(p,p')$  scattering
- 19:50 Barbara Wasilewska, IFJ PAN, Kraków,**  
First measurements of collective excitations in  $^{208}\text{Pb}$  induced by proton beam at CCB Krakow
- 20:05 Michelle Färber, IKP, University of Cologne,**  
Study of dipole excitations in  $^{124}\text{Sn}$
- 20:20 Balaram Dey, SINP, Kolkata,**  
Jacobi shape and clustering effects in light nuclei
- 20:45 Giulia Gosta, University of Milan,**  
Isospin symmetry breaking in the nucleus  $^{60}\text{Zn}$
- 21:00 Mateusz Krzysiek, IFJ PAN, Kraków,**  
Photoneutron cross section measurements for  $^{165}\text{Ho}$  by direct neutron-multiplicity sorting at NewSubaru

## Thursday, August 30<sup>th</sup>

### New Facilities for Nuclear Physics Research

8:30 – 10:30

Convener Sydney Gales


- 8:30 Sunchan Jeong, IBS, Daejeon,**  
Rare isotope science project in Korea
- 9:00 Boris Sharkov, JINR, Dubna,**  
Accelerator facilities and accelerator technologies in JINR
- 9:30 Ales Necas, TAE Technologies, Foothill Ranch,**  
Accelerator-driven fusion and transmutator triggered by accelerator-driven fusion
- 10:00 Faïçal Azaiez, iThemba LABS, Cape Town,**  
SAIF (South African Isotopes Facility): opening new frontiers in nuclear science and applications
- 10:30  Coffee Break**
- 11:00 Conference Excursion**
- 16:00-17:00 Organ and mini-Moog concert of Józef Skrzek (church in Maniowy)**
- 19:00 Regional dinner**

# Friday, August 31<sup>st</sup>

## Heavy nuclei – production mechanism and properties

8:30 – 10:30

Convener Krystyna Siwek-Wilczyńska

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- 8:30 Katsuhisa Nishio, JAEA, Tokai,**  
Heavy-ion reaction and fission studies at JAEA tandem accelerator facility
- 9:00 David Hinde, ANU, Acton,**  
Reactions timescales in heavy element synthesis
- 9:30 Vyacheslav Saiko, JINR, Dubna,**  
Orientational effects in low-energy collisions of heavy statically deformed nuclei
- 9:45 Tomasz Cap, NCNR, Świerk,**  
Study of multi-nucleon transfer reactions in collisions of the  $^{197}\text{Au} + ^{197}\text{Au}$  system at an energy of 23A MeV
- 10:00 Stanislav Antalic, Comenius University, Bratislava,**  
Decay spectroscopy in the rutherfordium region ( $Z=104$ ) at SHIP
- 10:15 Boris Andel, Comenius University, Bratislava,**  
Beta-delayed fission of  $^{188\text{m1.m2}}\text{Bi}$  investigated with laser-ionized isomeric beams
- 10:30**  **Coffee Break**
- 11:00 Gurgen Adamian, JINR, Dubna,**  
From dinuclear systems to close binary stars: application to mass transfer
- 11:30 Dieter Ackermann, GANIL, Caen,**  
Basic nuclear structure features of SHN and perspectives at S3
- 12:00 Piotr Jachimowicz, University of Zielona Góra,**  
Hindered alpha decays of heaviest high K-isomers
- 12:15 David Boiley, GANIL, Caen,**  
Synthesis of super-heavy-elements and fusion hindrance
- 12:30 Nikolay Skobelev, JINR, Dubna,**  
Population of isomeric states in fusion and transfer reactions
- 12:45 Krzysztof Pomorski, UMCS, Lublin,**  
On properties of even-even super-heavy nuclei



## Friday, August 31<sup>st</sup>

### Parallel session C

15:30 – 17:30

- 15:30 Maciej Konieczka, University of Warsaw,**  
Isospin-symmetry-breaking corrections to beta-decay
- 15:45 Amelia Kosior, UMCS, Lublin,**  
Evolution of triaxial shapes along the  $Z = 120$  isotopic chain
- 16:00 Frantisek Knapp, Charles University, Prague,**  
Effective basis truncation in the symmetry-adapted no core shell model
- 16:15 Myagmarjav Odsuren, NUM, Ulaanbaatar,**  
Structure of continuum states of the  $A=5$  mirror nuclei in the complex scaling method
- 16:30 Esra Yuksel, University of Zagreb,**  
Gamow-Teller excitations in open-shell nuclei at finite temperatures
- 16:45 Mojgan Abolghasem, VŠB Technical University of Ostrava,**  
Evolution of nuclear shapes and structure in tellurium, xenon, barium and cerium isotopes
- 17:00 Amiram Leviatan, Hebrew University of Jerusalem,**  
Partial dynamical symmetry and the phonon structure of cadmium isotopes
- 17:15 Kai Wen, University of Surrey, Guildford,**  
Self-consistent collective path and two-body dissipation effect in nuclear fusion reactions

### Parallel session D

15:30 – 17:30

- 15:30 Giulia Colucci, INFN and University of Padova,**  
A fast ionization chamber for the study of fusion reactions induced by low-intensity radioactive beams
- 15:45 Kamila Zelga, Jagiellonian University, Kraków,**  
Dedicated  $\Delta E$ - $E$  detector system for searching long lived heaviest nuclei in irradiated scintillators
- 16:00 Grzegorz Jaworski, INFN, Legnaro,**  
The new neutron multiplicity filter NEDA and its first physical campaign with AGATA
- 16:15 Remy Thoer, CSNSM, Orsay,**  
PolarEx, a future facility for on line nuclear orientation
- 16:30 Cory Binnarsley, University of Manchester,**  
Collinear Resonance Ionisation Spectroscopy (CRIS) studies of neutron-rich indium isotopes
- 16:45 Felix Sommer, TU, Darmstadt,**  
Nuclear charge radii and moments through Collinear Laser Spectroscopy at Argonne National Laboratory
- 17:00 Obed Shirinda, iThemba LABS, Cape Town,**  
Angular correlation measurements with the iThemba LABS segmented clover detector
- 17:15 Jan Dankowski, IFJ PAN, Kraków,**  
Thermal and radiation hardness of diamond detectors for neutron measurements in ITER

## Friday, August 31<sup>st</sup>

19:00 – 21:30

- 19:00 Greg Lane, Australian National University, Canberra, Australia**  
Galactic dark matter search with SABRE, a dual-site detector using ultra-pure NaI(Tl) scintillator
- 19:30 Nicolae Marginean, IFIN-HH, Bucarest,**  
Nuclear structure studies using the ROSPHERE array
- 20:00 Silvia Leoni, INFN, and University of Milan,**  
Shape Coexistence and shape isomerism in the Ni isotopic chain
- 20:30 Michal Ciemala, IFJ PAN, Kraków,**  
Lifetime measurements of excited states in neutron-rich C and O isotopes
- 20:50 Sara Ziliani, INFN and University of Milan,**  
Spectroscopy of neutron-rich C, O, N and F isotopes with the AGATA +PARIS+VAMOS setup at GANIL
- 21:05 Clement Delafosse, IPN, Orsay,**  
In flight and  $\beta$ -delayed  $\gamma$ -spectroscopy in the vicinity of  $^{78}\text{Ni}$  with AGATA at GANIL and BEDO at ALTO

## Saturday, September 1<sup>st</sup>

### Nuclear Isomerism

8:30 – 10:30

Convener Philip Walker

- 8:30 Hiroshi Watanabe, Beihang University, Beijing,**  
Exotic isomers explored at the new generation in-flight-separator facility RIBF
- 9:00 James J. Carroll, ARL, Maryland,**  
Isomer depletion research by the Army Research Laboratory
- 9:30 Maxime Mougeot, CSNSM, Orsay,**  
Binding energy studies at the extreme of the nuclear landscape with ISOLTRAP
- 9:45 Luca Marmugi, University College London,**  
Towards ultra-cold gases of caesium isomers: progress and perspectives
- 10:00 Mattias Rudigier, University of Surrey, Guildford,**  
Isomer spectroscopy and sub-nanosecond lifetime determination in  $^{178}\text{W}$  using the v-ball array
- 10:15 Francesco Recchia, INFN, Padova,**  
Shell evolution in neutron rich titanium isotopes investigated by isomer spectroscopy
- 10:30 Coffee Break**





## Saturday, September 1<sup>st</sup>

- 11:00** Attila Krasznahorkay, MTA-Atomki, Debrecen,  
On a new light particle observed in high energy nuclear transitions
- 11:30** Jerzy Dudek, IPHC Strasbourg, and UMCS, Lublin,  
Nuclear tetrahedral and octahedral symmetries: experimental evidence and applications in the exotic-nuclei research

### Special Talk and Closing of the Conference

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- 12:00** Ewa Gudowska – Nowak, Jagiellonian University, Kraków,  
Marian Smoluchowski's legacy in contemporary physics: a century of inspiration
- 12:45** Conference closing
- 14:00**  Hiking Trip
- 19:00**  Conference Banquet