

XXXVI MAZURIAN LAKES CONFERENCE ON PHYSICS

Probing fundamental laws of nature
with exotic nuclei and atoms



PRELIMINARY PROGRAM

September 1-7, 2019
Piaski, Poland

Sunday, September 1st

OPENING SESSION

- 20:00–20:10 Conference Opening
- 20:10–21:00 **Heinz-Eberhard Mahnke**
Virtual unfolding of folded papyri

RECEPTION

Monday, September 2nd

MORNING SESSION

- 8:30–9:00 **Andreas Bauswein**
Constraints on the nuclear equation of state from the gravitational wave signals of neutron-star mergers
- 9:00–9:30 **Ani Aprahamian**
High precision mass measurements of nuclei and the neutron star merger
- 9:30–10:00 **Walter Pettus**
Project 8: Towards the atomic tritium future of neutrino mass measurement
- 10:00–10:30 **Hideyuki Sakai**
Tri- and tetra-neutron search
- COFFEE BREAK
- 10:50–11:20 **Yasuhiro Sakemi**
Fundamental physics with cold radioactive atoms
- 11:20–11:50 **Peter Thirolf**
Characterization of the elusive ^{229m}Th isomer - milestones towards a nuclear clock
- 11:50–12:20 **Marek Pfützner**
Two-Proton Radioactivity – Current status
- 12:20–12:50 **Jérôme Giovinazzo**
Two-proton radioactivity: the interesting case of ^{67}Kr and further studies
- 12:50–13:05 **Dinko Atanasov**
Search for physics beyond the Standard Model with radioactive ^{32}Ar beam

EVENING SESSION

- 19:00–19:15 **Natalia Sokołowska**
 β -delayed proton emission from ^{11}Be
- 19:15–19:30 **Sara Ziliani**
Spectroscopy of C, N, O, F neutron-rich nuclei with AGATA+PARIS+VAMOS
- 19:30–19:45 **Onoufriou Sgouros**
Study of the $^6\text{Li}+p$ and $^7\text{Li}+p$ systems in the Continuum Discretized Coupled Channels approach
- 19:45–20:00 **Konrad Czerski**
Deuteron-Deuteron reaction rates at room temperature: puzzle of cold fusion
- 20:00–20:15 **Anastasios Kanellakopoulos**
Laser spectroscopy on germanium isotopes at COLLAPS-CERN
- BREAK
- 20:20–20:35 **Fredrik Parnefjord Gustafsson**
High-precision laser ionization spectroscopy towards ^{100}Sn
- 20:35–20:50 **Zhengyu Xu**
Beta-decay study on the neutron-unbound states in ^{133}Sn at ISOLDE Decay Station
- 20:50–21:05 **Monika Piersa**
 β -decay studies of neutron-rich ^{135}In , ^{134}In and ^{133}In nuclei
- 21:05–21:10 **Varvara Lagaki**
MIRACLS: A novel approach for Collinear Laser Spectroscopy
- 21:10–21:15 **Juan Saiz Lomas**
Towards a more precise measurement of the $Q(2^+)$ in ^{12}C : testing state-of-the-art ab initio theories
- 21:15–21:20 **Javier Diaz Ovejas**
Halo effects in the low-energy scattering of ^{15}C with heavy targets
- 21:20–21:25 **Michał Stepaniuk**
Beta delayed neutron measurements of ^{87}Br and ^{87}Kr decay by means of Modular Total Absorption Spectrometer

Tuesday, September 3rd

MORNING SESSION

- 8:30–9:00 **Krzysztof Pachucki**
Nuclear charge radii from the isotope shift measurements in ordinary and muonic atoms
- 9:00–9:30 **Evgeny Epelbaum**
High-accuracy calculation of the deuteron form factors
- 9:30–10:00 **Titus Morris**
Quantum computing
- 10:00–10:30 **Piotr Magierski**
Exotic aspects of superfluid dynamics
- COFFEE BREAK
- 10:50–11:20 **Guillaume Hupin**
Ab initio description of thermonuclear fusion reactions
- 11:20–11:50 **Peter Schwerdtfeger**
Chemical and physical properties of superheavy elements from Relativistic Coupled Cluster and Density Functional Theory
- 11:50–12:20 **Anastasia Borschevsky**
High accuracy theoretical investigations of heavy elements
- 12:20–12:50 **Jacek Dobaczewski**
Nuclear magnetic moments and time-odd properties of density functionals
- 12:50–13:05 **Maciej Konieczka**
Precise calculation of V_{ud} matrix element from $T = 1/2$ mirror nuclei in the DFT-rooted No-Core Configuration-Interaction model

EVENING SESSION

- 19:00–19:15 **Paul Garrett**
Shape-coexistence in the Ru isotopes; Multi-spectroscopic study of ^{98}Ru and beyond-mean-field calculations
- 19:15–19:30 **Andras Sveiczer**
Studying the exotic decays $^{71}\text{Kr} \rightarrow ^{71}\text{Br}$ and $^{70}\text{Kr} \rightarrow ^{70}\text{Br}$
- 19:30–19:45 **Magda Zielińska**
Octupole collectivity across the Zr isotopic chain from Coulomb-excitation studies with the Q3D magnetic spectrograph
- 19:45–20:00 **Silvia Leoni**
Search for shape isomers by using the selectivity of heavy-ion transfer reactions
- 20:00–20:15 **Zsolt Podolyák**
Neutron-rich nuclei with $N \geq 126$
- BREAK
- 20:20–20:35 **Giulia Gosta**
Isospin symmetry breaking in ^{60}Zn
- 20:35–20:50 **Petr Veselý**
Natural orbitals in the mean-field and beyond mean-field calculations of nuclei
- 20:50–20:55 **Paweł Bączyk**
New energy Density Functional from Quark Meson Coupling model
- 20:55–21:00 **Simone Bottoni**
Exploring the structure of odd-mass isotopes around the ^{132}Sn neutron-rich nucleus
- 21:00–21:05 **Andrzej Staszczak**
Exotic toroidal nuclei
- 21:05–21:10 **Terence Vockerodt**
Coupled channel wave-packet dynamics for low-energy heavy-ion collisions
- 21:10–21:15 **Radu-Emanuel Mihai**
Investigation of $\Delta T=1$ E1 transition strengths in self-conjugate ^{50}Mn
- 21:15–21:20 **Ryan Llewellyn**
First Measurements of $B(E2)$ s in the $N=Z$ ^{78}Y and ^{80}Zr

Wednesday, September 4th

MORNING SESSION

- 8:30–9:00 **Michael Wiescher**
*Neutron sources for the *i*-Process*
- 9:00–9:30 **Magne Guttormsen**
*Experimentally constrained (n, γ) reaction rates relevant to *r*-process and *i*-process nucleosynthesis*
- 9:30–10:00 **Anu Kankainen**
Mass measurements for nuclear astrophysics
- 10:00–10:30 **Ingo Wiedenhöver**
Measurement of $d+{}^7\text{Be}$ cross sections for Big-Bang nucleosynthesis
- COFFEE BREAK
- 11:50–11:20 **Naoki Fukuda**
Observation of new isotopes and perspectives on RI-beam production in the next decade at RIKEN RI Beam Factory
- 11:20–11:50 **Gerda Neyens**
Physics with radioactive beams at ISOLDE and HIE-ISOLDE @ CERN
- 11:50–12:20 **Hideki Ueno**
Nuclear-physics research based on RI spin orientation technique
- 12:20–12:35 **Rémy Thoër**
Polarex, a facility for on-line nuclear orientation at Alto : Multipolarity mixing ratio results
- 12:35–12:50 **Jonathan Wilson**
Physics highlights of the nu-ball experimental campaign
- 12:50–13:05 **Karolina Kolos**
Precision beta-decay branching ratio measurements for long-lived fission products

EVENING SESSION

- 19:00–19:15 **Grzegorz Kaminski**
Recent experimental studies at the ACCULINNA-2 separator
- 19:15–19:30 **Adam Broniś**
Conversion-electron spectroscopy in the transfermium region at SHIP
- 19:30–19:45 **Grzegorz Jaworski**
The new neutron detector array NEDA — status and achievements
- 19:45–20:00 **Aleksandra Ciemny**
Exotic decay modes of neutron-deficient silicon isotopes
- 20:00–20:15 **Barbara Wasilewska**
A study of γ -decay of the collective states in ^{208}Pb excited in (p,p') reaction at the CCB facility
- BREAK
- 20:20–20:35 **Sílvia Viñals Onsès**
Electron capture of ^8B into the highly excited states of ^8Be
- 20:35–20:40 **Pavol Mosat**
Study of K-isomers in ^{255}Rf
- 20:40–20:45 **Amelia Kosior**
Skyrme-HFB predictions to shape isomerism in neutron-deficient superheavy $Z=118-124$ isotopes
- 20:45–20:50 **Piotr Jachimowicz**
Fission properties of actinide nuclei within deformed Woods-Saxon model
- 20:50–20:55 **Qi Zeng**
Half-life measurement of short-lived $^{94\text{m}}\text{Ru}^{44+}$ using isochronous mass spectrometry
- 20:55–21:00 **Luke Morris**
Probing superdeformed bands in ^{28}Si using electromagnetic transitions
- 21:00–21:05 **Magdalena Matejska-Minda**
Investigation of the $K = 3/2^+$ rotational band in ^{45}Sc - revised lifetime of the $11/2^-$ state
- 21:05–21:10 **Giorgia Pasqualato**
Lifetime measurements in ^{105}Sn : the puzzle of $B(E2)$ and $B(M1)$ strengths in Sn isotopes

- 21:10–21:15 **Eleonora Teresia Gregor**
Transfer reactions with a helicoidal spectrometer at SPES
- 21:15–21:20 **Przemysław Sękowski**
Nuclear reactions in human-like tissues during proton therapy

Thursday, September 5th

MORNING SESSION

- 8:30–9:00 **Hiromitsu Haba**
Present status and perspectives of superheavy element researches at RIKEN
- 9:00–9:30 **Michael Block**
Precision measurements of nuclear properties of No, Lr and Rf isotopes at GSI / SHIP
- 9:30–10:00 **Katsuhisa Nishio**
Fission studies using multi-nucleon transfer reactions
- 10:00–10:20 **Michał Kowal**
Multi-quasiparticle excited states in superheavy nuclei
- 10:20–10:35 **Janusz Skalski**
Fission of odd \mathcal{E} odd-odd nuclei and isomers
- COFFEE BREAK
- 10:55–11:25 **Bertis Rasco**
The latest decay heat, $\bar{\nu}$, and β -delayed neutron results from the Modular Total Absorption Spectrometer
- 11:25–11:55 **Robert Grzywacz**
Toward complete studies of beta-delayed neutron emitters
- 11:55–12:25 **Marek Płoszajczak**
Toward the understanding of near-threshold collectivity
- 12:25–12:45 **Michał Ciemala**
Lifetime measurements of excited states in neutron-rich C and O isotopes as a test of the three-body forces

12:45–13:00 **Raul de Diego**
Two- and three-body observables in breakup reactions of halo nuclei

13:00–13:15 **Antonio Caciolli**
Study of the $^{22}\text{Ne}(p,\gamma)^{23}\text{Na}$ at LUNA

EVENING SESSION

19:00–21:00 POSTER SESSION

21:00– CAMPFIRE

Friday, September 6th

MORNING SESSION

8:30–9:00 **Calin Alexandru Ur**
Exploring the intimate structure of matter at ELI-NP

9:00–9:30 **Thomas Elias Cocolios**
Tb-IRMA-V: Terbium ISOL Radioisotopes for Medical Applications in Flanders

9:30–10:00 **Nicholas Scielzo**
Nuclear-data needs for applications

10:00–10:30 **Marek Lewitowicz**
European strategy for nuclear physics

COFFEE BREAK

10:50–10:55 **T. Czosnyka Prize Ceremony**

10:55–11:25 **Katarzyna Wrzosek-Lipska**
Shape coexistence studied with Coulomb excitation in the $N\sim 104$ and $N\sim 60$ regions

11:25–11:40 **Best Poster Award**

11:40–11:50 **Z. Szymański Prize Ceremony**

11:50–12:20 **Javier Menéndez**
Nuclear structure theory for double-beta decay and the interaction of nuclei with dark matter

12:20–13:05 **Witold Nazarewicz**
Nuclear theory challenges

EVENING SESSION

16:00–18:30 **Camerata String Quartet Concert**

20:00– **Conference dinner**