Programme

Probing fundamental interactions by low energy excitations
Advances in theoretical nuclear physics

05 – 09 June 2017
Oscar Klein Auditorium, AlbaNova building
Royal Institute of Technology, Stockholm, Sweden

Monday, June 5th

11:00 – 13:00 REGISTRATION & LUNCH

13:00 – 13:10 Opening and Welcome address by Leif Kari, Dean KTH School of Engineering Sciences

13:10 – 15:00 CHAIR: Bo Cederwall

- 13:10 – 13:35 T. Otsuka, University of Tokyo (20+5)
  Impact to Shell model, impact of shell model
- 13:35 – 14:00 A. Macchiavelli, Lawrence Berkeley National Laboratory (20+5)
  The GRETINA Physics Program.
- 14:00 – 14:20 A. Ekström, Chalmers University of Technology (15+5)
  Ab initio nuclear structure with chiral EFT
- 14:20 – 14:40 J. D. Holt, TRIUMF (15+5)
  Extending ab initio nuclear structure to the medium-mass driplines
- 14:40 – 15:00 E. Ydrefors, ITA (15+5)
  Relativistic studies of few-body systems using the Bethe-Salpeter approach

15:00 – 15:30 COFFEE BREAK

15:30 – 18:00 CHAIR: Chong Qi

- 15:30 – 15:55 L. Zamick, Rutgers University (20+5)
  Nuclear structure in mid-mass nuclei – from $^{40}$Ca to the tin isotopes
- 15:55 – 16:20 H. Grawe, GSI (20+5)
  Seniority, proton-neutron interaction and configuration mixing
- 16:20 – 16:40 M. Sambataro, I.N.F.N.-Sezione di Catania (15+5)
  Quartetting in even-even and odd-odd $N=Z$ Nuclei
- 16:40 – 17:00 Y. Utsuno, Japan Atomic Energy Agency (15+5)
  Probing proton-neutron pairing with Gamow-Teller strengths in two-nucleon configurations
- 17:00 – 17:20 J. Antonio Lay, Universidad de Sevilla (15+5)
  np-transfer reactions and the study of isovector and isoscalar pairing
- 17:20 – 17:35 G. Fu, Tongji University (12+3)
  Isovector and isoscalar pairing in low-lying states of $N=Z$ nuclei
- 17:35 – 18:00 T. Nakatsukasa, University of Tsukuba (20+5)
  Collective coordinate, reaction path, and inertial mass in large-amplitude nuclear collective motion

18:00 – 19:00 Reception

Tuesday, June 6th

National Holiday (Free Day, Visit to Skansen)
09:00 – 11:00  CHAIR: Arne Johnson
- 09:00 – 09:25  W. Satula, University of Warsaw (20+5)
  Isospin symmetry breaking effects in atomic nuclei within extended Density Functional Theory
- 09:25 – 09:50  F. Xu, Peking University (20+5)
  Resonance spectra of atomic nuclei
- 09:50 – 10:15  P. Magierski, Warsaw University of Technology (20+5)
  Towards exascale simulations of quantum superfluids – new perspectives for modelling nuclear processes
- 10:15 – 10:40  E. Lawrie, iThemba LABS (20+5)
  Rotation in triaxial nuclei: multiple bands, chirality, wobbling
- 10:40 – 11:00  E. Ganioglu, Istanbul University (15+5)
  High-resolution Studies of Charge Exchange on 47,48Ti in comparison with Shell Model Calculations

11:00 – 11:30  COFFEE BREAK

11:30 – 13:10  CHAIR: Arne Johnson
- 11:30 – 11:55  M. Riley, Florida State University (20+5)
  Backbending and the Pauli Blocking of Pairing Correlations at High Rotational Frequency and High Seniority in Rapidly Rotating Nuclei
- 11:55 – 12:20  R. Julin, University of Jyvaskyla (20+5)
  In-beam studies of very neutron deficient heavy nuclei
- 12:20 – 12:45  C. M. Petrache, CSNSM University Paris Saclay and CNRS.IN2P3 (20+5)
  Exotic Rotations in Lanthanides
- 12:45 – 13:10  E. Ideguchi, Osaka University (20+5)
  Probing shape evolutions in A 40 and 150 region

13:10 – 14:10  LUNCH

14:10 – 15:45  CHAIR: Claes Fahlander
- 14:10 – 14:35  P. M. Walker, University of Surrey (20+5)
  Unified perspective of K-forbidden decay hindrance factors at high spin
- 14:35 – 15:00  G. de Angelis, INFN Laboratori Nazionali Legnaro (20+5)
  Nuclear structure of exotic nuclei and the SPES radioactive ion beam facility
- 15:00 – 15:25  S. Mullins, iThemba LABS (20+5)
  Tree-Ring-Dating of Millennial Climate Change Across Southern Africa with AMS
- 15:25 – 15:45  H. Liu, KTH Royal Institute of Technology (15+5)
  Probing proton neutron correlations and three nucleon forces in 12C

15:45 – 16:15  COFFEE BREAK

16:15 – 18:05  CHAIR: Maria Doncel
- 16:15 – 16:40  M. Kortelainen, University of Jyvaskyla (20+5)
  Multiple modes in deformed nuclei within the finite amplitude method
- 16:40 – 17:05  A. Afanasjev, Mississippi State University (20+5)
  Predictive power of nuclear theories at nuclear extremes: the limitations and their sources
- 17:05 – 17:20  A. Dumitrescu, “Horia Hulubei” National Institute for R&D in Physics (12+3)
  Recent theoretical advances regarding α-decay spectroscopy
- 17:20 – 17:35  T. Oishi, University of Padova (12+3)
  Two-nucleon emission with pairing interaction in three-body systems
- 17:35 – 17:50  Y. Qian, Nanjing University (12+3)
  Tentative probe into the nuclear charge radii of superheavy nuclei through the experimental alpha decay data
- 17:50 – 18:05  S. Modi, Indian Institute of Technology (12+3)
  Probing beyond the drip line through triaxially deformed proton emitters

18:05 – 20:00  Drinks & Pizza
Thursday, June 8

09:00 – 10:15 CHAIR: Roberto Liotta

- 09:00 – 09:25 Ulf G. Meissner, University of Bonn & FZ Jülich (20+5)
  New insights into clustering in nuclei
- 09:25 – 09:50 B. Barrett, University of Arizona (20+5)
  The No Core Shell Model with a Core
- 09:50 – 10:15 J. Dukelsky, Instituto de Estructura de la Materia. CSIC. (20+5)
  Exactly solvable proton-neutron pairing models

10:15 – 10:45 COFFEE BREAK

10:45 – 12:25 CHAIR: Roberto Liotta

- 10:45 – 11:10 O. Civitarese, University of La Plata (20+5)
  Many body treatment of the QCD Hamiltonian in the Coulomb gauge: meson-like states.
- 11:10 – 11:35 D. Lee, North Carolina State University (20+5)
  Alpha-alpha scattering and the adiabatic projection method
- 11:35 – 11:55 C.-J Yang, IPN Orsay (15+5)
  Toward a new EFT approach to nuclear system
- 11:55 – 12:10 T. Miyagi, Center for Nuclear Study, the University of Tokyo (12+3)
  Ground-state energies and radii from the unitary-model-operator approach
- 12:10 – 12:25 H. Monge-Camacho, Lawrence Berkeley National Laboratory (12+3)
  Calculating nuclear matrix elements for neutrinoless double beta decay using lattice QCD Physics

12:25 – 14:00 LUNCH

13:50 – 14:55 CHAIR: Ayse Nyberg

- 13:50 – 14:10 K. Nomura, University of Zagreb (15+5)
  Evolution of nuclear shapes in the microscopically-guided algebraic theory
- 14:10 – 14:35 G. Rosensteel, Tulane University (20+5)
  SU(3) gauge theory of collective nuclear rotations
- 14:35 – 14:55 Y. Zhang, Liaoning Normal University (15+5)
  Euclidean Dynamical Symmetry Emerging in Nuclear Shape Phase Transitions

14:55 – 15:15 COFFEE BREAK

15:15 – 16:15 CHAIR: Ramon Wyss

Colloquium

- 15:15 – 16:15 R. Casten, Yale University
  Understanding atomic nuclei with algebra – historical perspective and recent developments

16:15 – 17:15 Free discussions

17:15 BUS TO THE BOAT

18:00 – 22:00 Boat Trip & Conference Dinner
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<thead>
<tr>
<th>Time</th>
<th>Chair</th>
<th>Session</th>
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<tbody>
<tr>
<td>09:00 – 11:05</td>
<td>Chong Qi</td>
<td>C. W. Johnson, San Diego State University (20+5)</td>
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<td><em>The anatomy of atomic nuclei: illuminating many-body wave functions through group-theoretical decomposition</em></td>
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<td>09:25 – 09:45</td>
<td>N. Shimizu</td>
<td>University of Tokyo (15+5)</td>
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<td><em>Shell model study on a double-beta-decay nucleus $^{48}$Ca</em></td>
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<td>09:45 – 10:05</td>
<td>R. M. Id Betan</td>
<td>Physics Institute of Rosario (15+5)</td>
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<td><em>Optimized two-body effective interaction for shell model studies in the continuum</em></td>
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<td>10:05 – 10:25</td>
<td>T. Suzuki</td>
<td>Nihon University (15+5)</td>
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<td><em>Structure of Drip-Line Nuclei</em></td>
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<td>10:25 – 10:45</td>
<td>J. Pei</td>
<td>Peking University (15+5)</td>
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<td><em>Probing quantum flows in deformed pygmy dipole modes</em></td>
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<td>10:45 – 11:05</td>
<td>N. Hinohara</td>
<td>University of Tsukuba (15+5)</td>
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<td><em>Pairing energy density functional constrained using pairing rotational moments of inertia</em></td>
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<td>11:05 – 11:30</td>
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<td>COFFEE BREAK</td>
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<td>11:30 – 13:30</td>
<td>Ramon Wyss</td>
<td>J. Cseh, MTA Atomki (20+5)</td>
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<td><em>Quartet and cluster excitations in light nuclei: A unified approach to low and high energy spectra</em></td>
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<td>11:55 – 12:10</td>
<td>R. Budaca</td>
<td>“Horia Hulubei” National Institute for R&amp;D in Physics (12+3)</td>
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<td><em>Transition and mixing within the nuclear shape phase space</em></td>
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<td>12:10 – 12:25</td>
<td>A. Stepšys</td>
<td>Vilnius University (12+3)</td>
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<td><em>Antisymmetric basis states construction for six body systems in translationally invariant basis</em></td>
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<td>12:25 – 12:40</td>
<td>C. Bai</td>
<td>Sichuan University (12+3)</td>
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<td><em>Effect of tensor force on low-energy excited states and relevant quantities</em></td>
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<td>12:40 – 13:05</td>
<td>L. Sarmiento</td>
<td>Lund University (20+5)</td>
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<td><em>Alpha-photon coincidence spectroscopy of superheavy nuclei</em></td>
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<td>J. Cederkall</td>
<td>Lund University (20+5)</td>
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<td><em>The HIE-ISOLDE project, status and recent results</em></td>
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