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)

Wednesday, June 7th

Special session to celebrate Ramon Wyss contribution to Nuclear Physics during 30 years at KTH on occasion of his 65 birthday

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. Ganioğlu,** 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 8th

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

Friday, June 9th

09:00 – 11:05 CHAIR: Chong Qi

- **09:00 – 09:25** **C. W. Johnson,** San Diego State University (20+5)
  The anatomy of atomic nuclei: illuminating many-body wave functions through group-theoretical decomposition
- **09:25 – 09:45** **N. Shimizu,** University of Tokyo (15+5)
  Shell model study on a double-beta-decay nucleus ^{48}Ca
- **09:45 – 10:05** **R. M. Id Betan,** Physics Institute of Rosarioe (15+5)
  Optimized two-body effective interaction for shell model studies in the continuum
- **10:05 – 10:25** **T. Suzuki,** Nihon University (15+5)
  Structure of Drip-Line Nuclei
- **10:25 – 10:45** **J. Pei,** Peking University (15+5)
  Probing quantum flows in deformed pygmy dipole modes
- **10:45 – 11:05** **N. Hinohara,** University of Tsukuba (15+5)
  Pairing energy density functional constrained using pairing rotational moments of inertia

11:05 – 11:30 COFFEE BREAK

11:30 – 13:30 CHAIR: Ramon Wyss

- **11:30 – 11:55** **J. Cseh,** MTA Atomki (20+5)
  Quartet and cluster excitations in light nuclei: A unified approach to low and high energy spectra
- **11:55 – 12:10** **R. Budaca,** "Horia Hulubei" National Institute for R&D in Physics (12+3)
  Transition and mixing within the nuclear shape phase space
- **12:10 – 12:25** **A. Stepšys,** Vilnius University (12+3)
  Antisymmetric basis states construction for six body systems in translationally invariant basis
- **12:25 – 12:40** **C. Bai,** Sichuan University (12+3)
  Effect of tensor force on low-energy excited states and relevant quantities
- **12:40 – 13:05** **L. Sarmiento,** Lund University (20+5)
  Alpha-photon coincidence spectroscopy of superheavy nuclei
- **13:05 – 13:30** **J. Cederkall,** Lund University (20+5)
  The HIE-ISOLDE project, status and recent results

13:30 CLOSING
13:30 – 14:30 LUNCH