

Second EMMI-EFES Workshop on Neutron-Rich Exotic Nuclei (EENEN 10)

– Neutron-Rich Nuclear Matter, Nuclear Structure,
and Nuclear Astrophysics –

Place: Nishina Hall, RIKEN

Date: June 16 (Wed.) – 18 (Fri.), 2010

Program

(Both 30- and 20-minutes talks include 5-minutes discussion)

Workshop Organizers

Thomas Aumann (GSI)

Shinichiro Fujii (Tokyo)

Gabriel Martinez-Pinedo (GSI)

Takashi Nakatsukasa (RIKEN)

Takaharu Otsuka (Tokyo)

Peter Ring (Munich)

June 16 (Wed.)

8:30 - Registration

9:00 - Opening, Takaharu Otsuka (Tokyo)

(New experimental facilities) Chair: Takashi Nakatsukasa (RIKEN)

9:10 - Karlhainz Langanke (GSI) "Current status of FAIR"

9:40 - Hiroyoshi Sakurai (RIKEN) "Current status of RIBF"

Coffee Break (10:10 – 10:40)

(Astrophysics) Chair: Shigeru Kubono (Tokyo)

10:40 - Toshio Suzuki (Nihon) "Beta decay and electron capture reactions in stars"

11:00 - Almudena Arcones (GSI) "Nucleosynthesis in core-collapse supernovae"

11:20 - Kaori Otsuki (Fukuoka) "Direct capture and the r-process"

11:40 - Tobias Fischer (Basel) "The search for the r-process site in explosions of massive stars"

12:00 - Shinya Wanajo (Munich) "The weak vs. main r-processes in neutrino-driven winds"

Lunch (12:20 – 13:30)

(Halos and clusters 1) Chair: Yasuyuki Suzuki (Niigata)

13:30 - Thomas Neff (GSI) "Beryllium isotopes studied in Fermionic Molecular Dynamics"

13:50 - Yuma Kikuchi (Hokkaido) "Coulomb breakups of two-neutron halo nuclei ${}^6\text{He}$ and ${}^{11}\text{Li}$ "

14:10 - Makoto Ito (Kansai) "Unified studies of structures and reactions by Generalized Two-Center Cluster Model"

(Nuclear reactions 1)

14:30 - Takuma Matsumoto (Hokkaido) "New description of four-body breakup reaction"

14:50 - Kosho Minomo (Kyushu) "Microscopic approach to scattering of unstable nuclei"

Coffee Break (15:10 – 15:40)

(Nuclear reactions 2) Chair: Thomas Aumann (GSI)

15:40 - Yasuyuki Suzuki (Niigata) "Solving a coupled-channels scattering problem by adding confining potentials"

16:00 - Shintaro Hashimoto (JAEA) "Systematic analysis of reaction cross section for deuteron induced reaction"

16:20 - Michael Albers (Cologne) "Coulomb-excitation of the exotic, neutron-rich nuclei ${}^{94}\text{Kr}$ and ${}^{96}\text{Kr}$ "

16:40 - Yoritaka Iwata (GSI) “Suppression of charge equilibration leading to the synthesis of exotic nuclei”

17:00 - Justyna Marganec (GSI) “Coulomb dissociation measurement of the $^{15}\text{O}(2p, \gamma)^{17}\text{Ne}$ cross section”

17:20 - Hidetoshi Yamaguchi (CNS) “Alpha resonance scattering measurements at CRIB”
- 17:40

Workshop Banquet (18:00 – 20:00, Hirosawa Club 2F)

June 17 (Thurs.)

(The nucleon-nucleon interaction, many-body forces, and ab-initio nuclear structure 1)

Chair: Shinichiro Fujii (Tokyo)

9:00 - Robert Roth (Darmstadt) “Importance Truncated No-Core Shell Model for the ab initio calculation of spectra and spectroscopy”

9:20 - Lang Liu (Tokyo) “Method to Monte Carlo Shell Model calculation for light nuclei by using UCOM interaction”

9:40 - Koshiroh Tsukiyama (Tokyo) “In-medium similarity renormalization group for nuclei”

10:00 - Jason D. Holt (Tennessee) “Three nucleon forces and shell evolution of medium-mass, neutron-rich nuclei”

Coffee Break (10:20 – 10:50)

(The nucleon-nucleon interaction, many-body forces, and ab-initio nuclear structure 2)

Chair: Takaharu Otsuka (Tokyo)

10:50 - Carlo Barbieri (RIKEN) “Understanding one- and two-nucleon structure from (ab-initio) Green's function theory”

11:10 - Dennis Weber (GSI) “Operator representation of realistic potentials for nuclear many-body calculations”

(Effect of tensor force)

11:30 - Naofumi Tsunoda (Tokyo) “Renormalization of the tensor force in effective interaction of nuclear force”

11:50 - Takayuki Myo (Osaka Inst. of Tech.) “Role of tensor force in light nuclei based on the tensor optimized shell model”

12:10 - Hiroyuki Sagawa (Aizu) “Effect of tensor correlations on spin-dipole excitations”

Lunch (12:30 – 13:40)

(Resonances, collective excitation 1) Chair: Yoritaka Iwata (GSI)

13:40 - Thomas Aumann (GSI) “Pygmy dipole excitations in neutron-rich nuclei”

14:00 - Kenichi Yoshida (RIKEN) “Pygmy resonance and giant resonance in deformed nuclei”

14:20 - Shuuichirou Ebata (Tsukuba) “Linear response calculation using canonical-basis TDHFB with a schematic pairing functional”

14:40 - Yukio Hashimoto (Tsukuba) “Nonlinear collective oscillations of light nuclei in TDHFB with Gogny force”

15:00 - Joachim Maruhn (Frankfurt) “News from TDHF”

Coffee Break (15:20 – 15:50)

(Resonances, collective excitation 2) Chair: Dario Vretenar (Zagreb)

15:50 - Peter von Neumann-Cosel (Darmstadt) “Complete dipole strength distributions from polarized proton scattering at zero degrees”

16:10 - Tsunenori Inakura (RIKEN) “Systematic calculations of electric dipole mode with fully self-consistent Skyrme-HF+RPA”

16:30 - Nobuo Hinohara (RIKEN) “Microscopic description of large-amplitude shape dynamics in neutron-rich Mg isotopes”

16:50 - Tomislav Marketin (Zagreb) “Application of relativistic density functional theory to charge-exchange neutrino-nucleus reactions”

17:10 - Elena Litvinova (GSI) “Recent progress in many-body models based on the covariant DFT”

17:30 - Futoshi Minato (JAEA) “Collectivity of low-lying Gamow-Teller strength for tin isotopes”
- 17:50

Poster session (18:00 – 20:00, with light meal)

1. Fumiharu Kobayashi (Kyoto) “A new hybrid model with dineutron condensate and AMD wave functions to investigate dineutron correlation in deformed nuclei”
2. Hirotaka Shimoyama (Niigata) “Anomalous pair vibrational states in neutron-rich Sn isotopes beyond $A = 132$ ”
3. Futoshi Minato (JAEA) “Collectivity of low-lying Gamow-Teller strength for tin isotopes”
4. Shuuichirou Ebata (Tsukuba) “Linear response calculation using canonical-basis TDHFB with a schematic pairing functional”
5. Shintaro Hashimoto (JAEA) “Systematic analysis of reaction cross section for deuteron induced reaction”

June 18 (Fri.)

(Medium-heavy and (super-)heavy nuclei) Chair: Toshio Suzuki (Nihon)

9:00 - Peter Moller (LANL) "Comments on the accuracy of nuclear structure models far from stability"

9:20 - Kosuke Nomura (Tokyo) "Derivation of IBM Hamiltonian and low-lying states of heavy neutron-rich nuclei"

9:40 - Koichi Sato (Kyoto) "Shape mixing dynamics in the low-lying states of proton-rich Kr isotopes"

Coffee Break (10:00 – 10:30)

(Density functionals, beyond mean-field models) Chair: Peter Ring (Munich)

10:30 - Dario Vretenar (Zagreb) "Nuclear energy density functionals"

10:50 - Tamara Niksic (Zagreb) "Beyond the relativistic mean-field approximation: configuration mixing calculations"

11:10 - Ying Zhang (Niigata) "Gradient method to solve the Hartree-Fock-Bogoliubov equation in the coordinate space"

11:30 - Yasutaka Taniguchi (RIKEN) "Triaxial superdeformations in $A \approx 40$ region"

Lunch (11:50 – 13:00)

(Halos and clusters 2) Chair: Thomas Neff (GSI)

13:00 - Yoshiko Kanada-En'yo (Kyoto) "Cluster features in ground and excited states of ^{12}C and ^8He "

13:20 - Tadahiro Suhara (Kyoto) "Cluster structures of excited states in ^{14}C "

13:40 - Naoya Furutachi (Hokkaido) "Halo structure involving core excitation in ^{15}C "

14:00 - Yasuro Funaki (Tsukuba) "Alpha particle condensation in light nuclei"

14:20 - Masaaki Kimura (Hokkaido) "Spectroscopy of $N = 21$ isotones in the island of inversion studied with Antisymmetrized Molecular Dynamics"

Short Break (14:40 – 14:50)

(Shell model) Chair: Gabriel Martinez-Pinedo (GSI)

14:50 - Kazuo Muto (Tokyo Inst. of Tech.) "Nuclear monopole interaction and shell structure evolution"

15:10 - Kamila Sieja (GSI) "New land of deformation south of ^{68}Ni "

15:30 - Noritaka Shimizu (Tokyo) "Extrapolation method in the Monte Carlo Shell Model"

15:50 - Closing, Peter Ring (Munich)