

International Workshop "Nuclear Physics with RIBF", Wako, Saitama, March 13-17<sup>th</sup>, 2006

## Program

13<sup>th</sup> Plenary session: Conf. Hall in Wako-city Hall 10:00-17:20

14<sup>th</sup> Plenary session: Conf. Hall in Wako-city Hall 9:45-18:35

15<sup>th</sup> Parallel session

"Exploring variations of single-particle motions" : Nishina-Hall in RIKEN-Wako campus

"Novel dynamics of nuclear matter" : RIBF Conf.-Hall in RIKEN-Wako campus

"Innovative approach to nuclear reaction-I" : RIBF Conf.-Hall in RIKEN-Wako campus

Facility Tour (13:30-14:30)

16<sup>th</sup> Parallel session

"Novel correlations in dilute nuclear matter" : Suzuki-Umetaro-Hall in RIKEN-Wako campus

"New collectivity beyond nuclear self-consistency" : Suzuki-Umetaro-Hall in RIKEN-Wako campus

"Innovative approach to nuclear reaction-II" : RIBF Conf.-Hall in RIKEN-Wako campus

Workshop Buffet (18:30-20:00)

17<sup>th</sup> Plenary session: Suzuki-Umetaro-Hall in RIKEN-Wako campus 10:00-12:00

**Mar 13<sup>th</sup>**

**Plenary Session at Conf. Hall in Wako-city Hall**

**Morning session (10:00-12:30)**

10:00 Welcome Address	Y.Yano (RIKEN)	10 min
10:10 Overview of RIBF facility	H. Sakurai (RIKEN)	15+5min
10:30 Operation scheme of RIBF facility	T. Motobayashi (RIKEN)	10+5min.
10:45 RIBF User Group	A. Ozawa (Tsukuba Univ.)	10+5min.
Break 20min.		
11:20 BigRIPS/ZeroDegree Project	T. Kubo (RIKEN)	20+5min.
11:45 Nuclear radius measurements at BigRIPS	A. Ozawa (Tsukuba Univ.)	15+5min.
12:05 In-beam gamma spectroscopy with RIBF	N. Aoi (RIKEN)	20+5min.

**Afternoon session (14:00-17:20)**

14:00 Present and future program driven by polarized-RI beams	H. Ueno (RIKEN)	20+5min.
14:25 Shell-model understanding for shell evolution	Y. Utsuno (JAEA)	20+5min.
14:50 Shell structure evolution in nuclei far from stability: recent results and future perspective	F. Azaiez (IPN-Orsay)	20+5min.
15:15 High-spin superdeformed states in stable nuclei	T. Nakatsukasa (Univ. of Tsukuba)	20+5min.
Break 30min.		
16:10 Physics program with the SHARAQ spectrometer	S. Shimoura (CNS, Univ. of Tokyo)	20+5min.
16:35 Collective many-body dynamics beyond nuclear drip lines	A. Volya (Florida State Univ.)	20+5min.
17:00 Proton elastic scattering at RIBF	H. Takeda (RIKEN)	15+5min.

**Mar 14<sup>th</sup>**

**Plenary Session at Conf. Hall in Wako-city Hall**

**Morning session (9:45-12:30)**

9:45 The SAMURAI project and physics opportunity	T. Kobayashi (Tohoku U.)	20+5min.
10:10 Invariant mass spectroscopy of neutron-rich nuclei	T. Nakamura (Tokyo Inst. of Tech.)	15+5min.
10:30 Diffraction contributions to two-nucleon knockout reactions	J.Tostevin (Univ. Surrey)	20+5min.
Break 20min.		
11:15 A next-generation setup for scattering experiments with high-energy beams	T. Aumann (GSI)	20+5min.
11:40 Nuclear matter equation of state and giant resonances in nuclei	S. Shlomo (Texas A&M)	20+5min.
12:05 Measurement of the asymmetry term at RIKEN	W.Lynch (MSU)	20+5min.

**Afternoon session (14:00-18:35)**

14:00 Atomic-mass measurement (tentative)	H. Wollnik (Giessen Univ.)	20+5min.
14:25 The SLOWRI project and physics opportunity	M. Wada (RIKEN)	20+5min.
14:50 Mass measurement with Rare-isotope storage ring	A. Ozawa (Tsukuba U.)	20+5min.
Break 20min.		
15:35 Present and future experiments with stored exotic nuclei at GSI-FAIR	H. Geissel (GSI)	20+5min.
16:00 Measurement of charge form factor with the SCRIT system	M. Wakasugi (RIKEN)	20+5min.
16:25 Polarization phenomena in nucleon knockout reactions and $j>$ and $j<$ distributions in nuclei	T. Uesaka (CNS, Univ. of Tokyo)	15+5min.
Break 20min.		
17:05 Present and future program with GARIS	K. Morita (RIKEN)	20+5min.
17:30 Present and future program with CRIB	S. Kubono (CNS, Univ. of Tokyo)	20+5min.
17:50 Study of Nuclear Astrophysics using the Coulomb dissociation method in RIBF	N. Iwasa (Tohoku Univ.)	15+5min.
18:10 RIBF-NAP (Nuclear Astrophysics) Project	Y. Motizuki (RIKEN)	20+5min.

## Mar 17<sup>th</sup> Plenary Session at Suzuki-Umetaro Hall

10:00 Panel discussion on physics problems

Exploring variations of single-particle motions Otsuka

Novel dynamics of nuclear matter Ono

Novel correlations in dilute nuclear matter Matsuo

New collectivity beyond nuclear self-consistency Sagawa

Innovative approach to nuclear reaction-I Yabana

Innovative approach to nuclear reaction-II Ogata

11:30 Summary and next direction

H. Sakurai (RIKEN)

15 min.

## 15<sup>th</sup> 10:00-18:40 at Nishina Hall

### Exploring variations of single-particle motions

#### 9:30-12:30

(Key Note presentation)	T. Otsuka (University of Tokyo)	20+5min.
Structures of unstable nuclei from modern NN forces	S. Fujii (CNS, Univ. of Tokyo)	15+5min.
Gamma-ray spectroscopy in Charge exchange reaction	S. Michimasa (RIKEN)	15+5min.
Extended three-body model of $^{11}\text{Li}$ with pairing and tensor correlations	T. Myo (Osaka U.)	15+5min.
Break 20min.		
Shell model approach to neutron-rich nuclei	M. Honma (Univ. of Aizu)	15+5min.
Nuclear moment measurements using spin-polarized RI beams via projectile fragmentation - Recent results and the prospects in RIBF -	D. Kameda (RIKEN)	15+5min.
Magnetic properties of nuclei based on new shell model interactions	T. Suzuki (Nihon Univ.)	15+5min.
Precision mass measurements of short-lived nuclei using a multi-reflection time-of-flight mass spectrometer	Y. Ishida (RIKEN)	15+5min.

#### 14:30-18:10

Toward low-energy nuclear effective interaction for global use	H. Nakada (Chiba Univ.)	15+5min.
Development of hybrid array for gamma-ray spectroscopy	S. Takeuchi (RIKEN)	15+5min.
Analyzing power measurement for transfer reactions	M. Yamaguchi (RIKEN)	15+5min.
Study of Isomeric States at RIBF	T. Kishida (RIKEN)	15+5min.
Beta-decay studies with interests in nuclear structure, astrophysics and weak interactions	T. Sumikama (RIKEN)	15+5min.
Break 20min.		
Electric dipole moment induced from nucleus	A. Yoshimi (RIKEN)	15+5min.
Theoretical approaches for nuclear EDM	A. Umeya (TITech)	15+5min.
Search for permanent electric dipole moment of francium	Y. Sakemi (RCNP)	15+5min.
T-violation experiment using electron polarimeter	J. Murata (Rikkyo Univ.)	15+5min.
Discussion led by Otsuka and Aoi		

## 15<sup>th</sup> 10:00 - 12:00 at RIBF-Conf. Hall

### Novel dynamics of nuclear matter

Multifragmentation and the Density Dependence of Symmetry Energy	A. Ono (Tohoku Univ.)	20+5min.
Neutron-Proton Transverse Emission Ratio Results Relevant to Density Dependence of the Asymmetry Term of the Nuclear Equation-of-State	M. Famiano (Western Michigan Univ.)	15+5min.
Asymmetric nuclear matter probed by RI beam	T. Murakami (Kyoto U.)	15+5min.
Intermediate Heavy-Ion Collisions with Exotic Nuclei and Nuclear Equation of State	T. Maruyama (Nihon Univ.)	15+5min.
Nuclear liquid-gas phase transition in symmetric and neutron-rich systems studied by Anti-symmetrized Molecular Dynamics	T. Furuta (Tohoku Univ.)	15+5min.
Discussions led by Ono and Tsang		

## 15<sup>th</sup> 15:00-17:40 at RIBF-Conf. Hall

### Innovative approach to nuclear reactions -I

What can we learn from 'fusion suppression' in pre-SHE systems?

K. Hagino (Tohoku Univ.)

20+5min.

Study of proton and light charged particle production induced by intermediate energy protons

T. Kin (Kyushu Univ.)

15+5min.

Status of Intermediate Energy Nuclear Data and their Application

T. Fukahori (JAEA)

15+5min.

Break 20min.

Reaction mechanism in neutron-rich nuclei by TDHF3D calculation

Y. Iwata (Univ. of Tokyo)

15+5min.

Quantum effects in the diffusion process to form a heavy nucleus in heavy-ion fusion reactions

K. Washiyama (Tohoku Univ.)

15+5min.

Discussion led by Hagino and Yabana

## 16<sup>th</sup> 9:30-12:30 at Suzuki-Umetaro Hall

### Novel correlations in dilute nuclear matter

Di-neutron correlation and dynamics in neutron rich and low density many-nucleon systems	M. Matsuo (Niigata Univ.)	20+5min.
Coexistence of cluster structure and mean-field-type structure in medium-weight nuclei	Y. Taniguchi (Kyoto U.)	15+5min.
Correlations in the Charge Radii of Complex systems	M. Tomaselli (GSI)	15+5min.
Calculations for $^{10}\text{He}$ with core excitation using Faddeev equations	E. Uzu (Tokyo Univ. of Science)	15+5min.
Break 20min.		
Structure of continuum states	K. Kato (Hokkaido Univ.)	15+5min.
(p,p') and (p,n) reactions on halo nuclei	Y. Sato (Tokyo Inst. of Tech.)	15+5min.
Discussion led by Matsuo and Enyo comments by Kanada-En'yo et al.		



## 16<sup>th</sup> 13:30-18:20 at Suzuki-Umetaro Hall

### New collectivity beyond nuclear self-consistency

Spin-dipole excitations and neutron skin thickness	H. Sagawa (Univ. of Aizu)	20+5min.
Spectroscopy on medium and heavy neutron-rich nuclei via two-step Coulomb excitation at intermediate energies	H. Iwasaki (Univ. of Tokyo)	15+5min.
Deformation parameters for diffuse density	N. Lwin (Tohoku Univ.)	15+5min.
Mixed representation RPA calculation for deformed nuclei	T. Inakura (Niigata Univ.)	15+5min.
Study of High-Spin States using Isomeric Beam	T. Fukuchi (Rikkyo)	15+5min.
New insight into collective excitations from the novel concept of single-particle motions in weakly-bound superfluid nuclei	M. Yamagami (RIKEN)	15+5min.
Break 20min.		
Lifetime measurements of excited states in unstable nuclei	N. Imai(IPNS, KEK)	15+5min.
Charge-exchange reaction and multiphonon excitation at RIBF	T. Ichihara (RIKEN)	15+5min.
A systematic study of the ground-state properties of atomic nuclei in the relativistic mean field model	L. Geng (Peking Univ.)	15+5min.
Equation of state of nuclear matter and nuclei in laboratories and neutron-star crusts	K. Oyamatsu (Shukutoku Univ.)	15+5min.
Surface vibrations of the neutron skin. Have they been found?	Zs. Dombradi (ATOMKI)	15+5min.
Missing mass spectroscopy with inverse kinematics in RIBF facility	H. Otsu (RIKEN)	15+5min.
Discussions led by Sagawa and Matsuo		

## 16<sup>th</sup> 9:30-17:30 at RIBF Conf. Hall

### Innovative approach to nuclear reactions -II

#### Morning session 9:30-12:30

A plan for CDCC analysis of RIBF experiments	K. Ogata (Kyushu Univ.)	20+5min.
Microscopic optical potential for nucleon and composite projectiles based on complex G-matrix interactions (tentative)	Y.Sakuragi (Osaka City Univ.)	15+5min.
Coulomb dissociation of proton-rich nuclei in RIBF	Y. Togano (Rikkyo Univ.)	15+5min.
First Step to Develop Ubiquitous Detection System and its Application to Spin Assignment via ( <i>pol.</i> He, $\alpha$ ) Reaction	M. Kurokawa (RIKEN)	15+5min.
Break 20min.		
Inelastic scattering of light unstable nuclei	M. Takashina (RIKEN)	15+5min.
Nuclear reaction using ultra-thin silicon detector	S. Nishimura (RIKEN)	15+5min.
The method of continuum-discretized coupled-channels for four-body breakup reactions	T. Matsumoto (RIKEN)	15+5min.
Four-body CDCC analysis of ${}^6\text{He}+{}^{209}\text{Bi}$ scattering near Coulomb barrier energies	T. Egami (Kyushu Univ.)	15+5min.

#### Afternoon session 14:00-18:00

Visualizing reaction mechanism with time-dependent method	K. Yabana (Tsukuba Univ.)	20+5min.
Two-nucleon knockout reaction as a probe of pair correlation	K. Yoneda (RIKEN)	15+5min.
Few Nucleon Study at RIBF	K. Sekiguchi (RIKEN)	15+5min.
Plan of the pion production on deuteron proton scattering in RIBF	H. Kamada (Kyushu Inst. Tech)	15+5min.
Hydrogen target for reaction cross section measurement	K. Tanaka (RIKEN)	15+5min.
Break 20min		
Reaction cross section and nuclear radius in black-sphere picture	A. Kohama (RIKEN)	15+5min.
Nuclear structure by using elastic and inelastic scattering	S. Terashima (Kyoto Univ.)	15+5min.
Exploring densities and neutron excitation of near-dripline nuclei	V. Lapoux (CEA-SACLAY)	15+5min.
Structure studies of short-lived nuclei by electron scattering	T. Suda (RIKEN)	15+5min.
Studies of isoscaling behavior and symmetry energy by projectile fragmentation	D. Fang (SINAP)	15+5min.
Discussion led by Ogata and Yabana		