Preface xi
Committees xii
Symposium Photos xiii
Conference Poster xix

NUCLEAR DYNAMICS

Fusion and Quasi-Elastic Scattering around the Coulomb Barrier: Determination of Inter-Nucleus Potential 3
K. Hagino

Dynamical Dipole Mode in Fusion Reactions 9
D. Pierroutsakou, B. Martin, C. Agodi, R. Alba, V. Baran, A. Boiano, G. Cardella, M. Colonna, R. Coniglione, E. De Filippo, A. Del Zoppo, M. Di Toro, G. Inglima, T. Glodariu, M. La Commara, C. Maiolino, M. Mazzocco, A. Pagano, P. Piatteli, S. Pirrone, C. Rizzo, M. Romoli, M. Sandoli, D. Santonocito, P. Sapienza, and C. Signorini

Barrier Distribution of Quasi-Elastic Backward Scattering 15
S. Mitsuoka, H. Ikezoe, K. Nishio, Y. Watanabe, S. C. Jeong, H. Ishiyama, Y. Hirayama, N. Imai, and H. Miyatake

RIBs for Reaction Studies at Near-Barrier Energies: The Facility EXOTIC at LNL 21
M. Mazzocco, T. Glodariu, A. Guglielmetti, G. Inglima, M. La Commara, C. Mazzocchi, D. Pierroutsakou, M. Romoli, M. Sandoli, C. Signorini, F. Soramel, L. Stroe, and E. Vardaci

Analysis of Mass Distribution of Fission Fragment in Superheavy Mass Region 27
Y. Aritomo

$^{10\text{-}11}$Li and $^{13\text{-}14}$Be Studied by Projectile Fragmentation and pp-RPA 32
G. Blanchon, A. Bonaccorso, D. M. Brink, and N. Vinh Mau

Isospin Effects in Heavy-Ion Collisions: Some Results from CHIMERA Experiments at LNS and Perspectives with Radioactive Beams 38
G. Cardella, F. Amorini, A. Anzalone, N. Arena, L. Auditore, R. Barnà, A. Benisz, I. Berceanu, M. B. Chatterjee, S. Cavallaro, E. De Filippo, U. Emanuele, W. Gawlikowicz, E. Geraci, L. Grassi, G. Giuliani, A. Grzeszczuk, P. Guazzoni, S. Kowalski, E. La Guidara, G. Lanzalone, I. Lombardo, S. Lo Nigro, D. Loria, C. Maiolino, N. G. Nicolis, A. Pagano, M. Papa, I. Pawelczak, M. Petrovici, S. Pirrone, R. Planeta, G. Politi, A. Pop, F. Porto, F. Previdi, M. Quinlan, F. Rizzo, E. Rosato, P. Russotto, W. U. Schröder, I. Skwira-Chalot, K. Siwek-Wilczynska, K. Schmidt, A. Sochocka, L. Swiderski, A. Trifirò, M. Trimarchi, J. Tõke, G. Verde, M. Vigilante, J. Wilczynski, L. Zetta, and W. Zipper

Study of Nuclear Matrix Elements of Two-Neutrino Double-Beta Decay by (p,n) and (n,p) Reactions 47
K. Yako for the ICHOR Project and the RCNP E272, E293 Collaborations
The Gamma Decay of the GDR under Extreme Conditions 53
O. Wieland
High-Resolution Spectroscopy Using Direct Reactions of RI Beams 59
S. Shimoura
Shape Phase Transitions and Critical Points 64
C. E. Alonso, J. M. Arias, L. Fortunato, and A. Vitturi
Spectroscopy of Neutron-Rich Nuclei Populated through Binary Heavy-Ion Collisions 70
S. Lunardi
A Simple Description of Doublet Bands in Mass around 100 76
N. Yoshinaga and K. Higashiyama
Shell Evolution in the sd-pf Shell Studied by the Shell Model 81
Y. Utsuno, T. Otsuka, B. A. Brown, M. Honma, and T. Mizusaki
Bethe Ansatz Technique in Shell Model 87
A. B. Balantekin and Y. Pehlivan
Spatial Dependence of the Pairing Gap in Superfluid Nuclei 92
E. Vigezzi, F. Barranco, R. A. Broglia, A. Pastore, and G. Potel
Time-Dependent Mean-Field Theory in Nuclear and Electronic Systems 98
K. Yabana, Y. Kawashita, T. Inakura, and T. Nakatsukasa
Ab-initio Green's Functions Calculations of Atoms 104
C. Barbieri and D. Van Neck
Precision Hyperfine Structure Spectroscopy of Be Isotopes at SLOWRI Prototype and Prospects of SLOWRI at RIKEN 109
M. Wada, A. Takamine, K. Okada, T. Sonoda, P. Schury, Y. Yamazaki, Y. Kanai, T. M. Kojima, A. Yoshida, T. Kubo, H. Iimura, I. Katayama, S. Ohtani, H. Wollnik, and H. A. Schuessler
Perspectives on the Physics of Hypernuclei 114
A. Feliciello
Recent Progress in Strangeness Nuclear Physics 120
T. Nagae

NUCLEAR MATTER

Equation of State of Nuclear Matter in the First Order Phase Transition 129
T. Maruyama, T. Tatsumi, and S. Chiba
Nuclear Physics for Compact Stars 135
M. Baldo

Interaction between Vortices and Nuclei in the Inner Crust of Neutron Stars 141
P. Avogadro, F. Barranco, R. A. Broglia, and E. Vigezzi
General Relativistic Compact Stars with Exotic Matter 146
N. Yasutake, T. Maruyama, T. Tatsumi, K. Kiuchi, and K. Kotake
The ALICE Experiment: Overview and Status 151
E. Vercellin for the ALICE Collaboration
Heavy Ion Physics at RHIC 157
Y. Akiba

NUCLEAR ASTROPHYSICS

Neutrino Nucleosynthesis in Supernovae 165
T. Yoshida, T. Suzuki, S. Chiba, T. Kajino, H. Yokomakura, K. Kimura, A. Takamura, and D. H. Hartmann
New Results on the Trojan Horse Method Applied to the ^{10,11}B+p Reactions 171
C. Spitaleri, S. Romano, L. Lamia, S. M. R. Puglia, M. G. Del Szanto, N. Carlin, M. G. Munhoz, V. Kroha, S. Kubono, E. Somoryai, A. Szanto de Toledo, S. Cherubini, V. Crucillà, M. Gulino, G. Kiss, M. La Cognata, C. Li, R. Liguori Neto, M. M. De Moura, R. G. Pizzone, G. G. Rapisarda, M. L. Sergi, F. A. Souza, A. A. P. Suaide, E. Szanto, G. Tabacaru, S. Tudisco, A. Tumino, Y. Wakabayashi, Q. Wen, and H. Yamaguchi
A Systematic Study of Astrophysical Reaction Rates through ^{8}Li 177
H. Ishiyama, T. Hashimoto, K. Yamaguchi, Y. X. Watanabe, N. Imai, Y. Hirayama, H. Miyatake, M.-H. Tanaka, N. Yoshikawa, S. C. Jeong, Y. Fuchi, I. Katayama, T. Nomura, T. Ishikawa, S. K. Das, Y. Mizoi, T. Fukuda, K. Nishio, S. Mitsuoka, H. Ikezoe, M. Matsuda, S. Ichikawa, T. Shimoda, K. Otsuki, and T. Kajino
The γ-ray Strength Function in Nuclear Astrophysics 183
H. Utsunomiya, H. Akimune, T. Yamagata, T. Kondo, M. Kamata, O. Itoh, H. Toyokawa, K. Yamada, T. Matsumoto, H. Harada, F. Kitatani, S. Goko, S. Goriely, S. Hilaire, and A. J. Koning
Nuclear Astrophysical Studies Using Low-Energy RI Beams at CRIB 189
H. Yamaguchi, Y. Wakabayashi, S. Hayakawa, D. N. Binh, D. Kahl, Y. Kurihara, S. Kubono, T. Teranishi, J. J. He, Y. K. Kwon, S. Nishimura, Y. Togano, N. Iwasa, M. Niikura, and L. H. Khiem

APPLICATION

Diffusion Experiment in Lithium Ionic Conductors with the Radiotracer of ^{8}Li: From Micro- to Nano-Diffusion 197
S. C. Jeong, I. Katayama, H. Kawakami, Y. Watanabe, H. Ishiyama, N. Imai, Y. Hirayama, H. Miyatake, M. Sataka, H. Sugai, S. Okayasu, S. Ichikawa, K. Nishio, S. Mitsuoka, T. Nakanoya, T. Hashimoto, T. Hashimoto, and M. Yahagi

Nuclear Data for Nuclear Transmutation 203
H. Harada
Applied Nuclear Physics for Atmospheric Aerosol Studies 209
M. Chiari, L. Bonanni, G. Calzolai, F. Lucarelli, F. Mazzei, S. Nava, P. Prati, G. Valli, and R. Vecchi
Material Research Using Mössbauer Spectroscopy with Exotic Nuclei 215
Y. Kobayashi
Dosimetric and Clinical Experience in Eye Proton Treatment at INFN-LNS 221
G. A. P. Cirrone, G. Cuttone, F. Di Rosa, P. Lojacono, V. Mongelli, S. Lo Nigro, J. Ott, I. V. Patti, S. Pittera, G. Privitera, L. Raffaele, A. Reibaldi, G. Russo, V. Salamone, M. G. Sabini, C. Spatola, and L. M. Valastro

INNOVATIVE INSTRUMENTATION AND FUTURE FACILITIES

Experimental Nuclear Physics with INFN 229
A. Bracco
Recent Activities in Tandem, Booster and TRIAC at Tokai 235
T. Ishii, M. Matsuda, H. Kabumoto, and A. Osa
RIKEN RIBF—Present Status and Future Plan 241
H. Sakurai
The SPES Project: An ISOL Facility for Exotic Beams 247
G. Prete, A. Andrighetto, L. Biasetto, M. Manzolaro, F. Gramegna, A. Lombardi, A. Pisent, J. Esposito, E. Fagotti, M. Cinausero, P. Mastinu, L. Calabretta and the SPES Collaboration

POSTER

Shell Model Study of Neutron Rich Se and Ge Isotopes 255
N. Yoshinaga, K. Higashiyama, and P. H. Regan
Systematic Study of Electric Dipole Excitations with Fully Self-Consistent Skyrme HF plus RPA Calculation from Light to Medium-Mass Deformed Nuclei 260
T. Inakura, T. Nakatsukasa, and K. Yabana
Application of Doppler-Shift Attenuation Method to the De-Excitation γ Rays from the In-Flight ^{12}Be Beam 265
N. Imai, N. Aoi, H. J. Ong, H. Sakurai, K. Demichi, H. Kawasaki, H. Baba, Zs. Dombrádi, Z. Elekes, N. Fukuda, Zs. Fülöp, A. Gelberg, T. Gomi, H. Hasegawa, K. Ishikawa, M. Ishihara, H. Iwasaki, E. Kaneko, S. Kanno, T. Kishida, Y. Kondo, T. Kubo, K. Kurita, S. Michimasa, T. Minemura, M. Miura, T. Motobayashi, T. Nakamura, M. Notani, T. K. Ohnishi, A. Saito, S. Shimoura, T. Sugimoto, M. K. Suzuki, E. Takeshita, S. Takeuchi, M. Tamaki, H. Watanabe, and K. Yoneda
Structure of Multi-Antikaonic Nuclei 270
T. Muto, T. Maruyama, and T. Tatsumi

Effects of Nuclear Orientation on Fusion and Fission Process in Heavy Ion Reactions 275
K. Nishio, H. Ikezoe, S. Mitsuoka, I. Nishinaka, Y. Watanabe, Y. Nagame, T. Ohtsuki, K. Hirose, and S. Hofmann

Measurement of Quasi-Elastic Back-Scattering of ^{64}Ni+^{118}Sn and ^{58}Ni+^{124}Sn 280
Y. X. Watanabe, S. Mitsuoka, K. Nishio, S. C. Jeong, T. Hashimoto, Y. Hirayama, N. Imai, H. Ishiyama, H. Miyatake, and H. Ikezoe

Measurement of $E1$ and $E2$ Cross Sections of ^{12}C(α,γ)^{16}O Using Pulsed α Beams 284
H. Makii, Y. Nagai, K. Mishima, M. Segawa, T. Shima, H. Ueda, and M. Igashira

Photon Scattering Experiment on ^{139}La below Neutron Separation Energy at ELBE 289
A. Makinaga, G. Rusev, R. Schwengner, A. R. Junghans, and A. Wagner

The Study of ^{18}F+p Reaction at Astrophysical Energies 294
S. Cherubini, C. Spitaleri, V. Crucillà, M. Gulino, M. La Cognata, L. Lamia, R. G. Pizzone, S. Romano, S. Kubono, H. Yamaguchi, Y. Wakabayashi, S. Hayakawa, N. Iwasa, S. Kato, T. Komatsubara, T. Teranishi, A. Coc, N. De Séréville, and F. Hammache

Effects of Spin-Flavor Conversion in Supernova Neutrino Signal 298
T. Yoshida, A. Takamura, K. Kimura, H. Yokomakura, S. Kawagoe, and T. Kajino

Neutrino Mass Effects on the CMB Polarization with PMF 303
K. Kojima, T. Kajino, and G. J. Mathews

Present Status of Charge-Breeding in KEKCB at TRIAC 308
M. Oyaizu, S. C. Jeong, N. Imai, Y. Fuchi, Y. Hirayama, H. Ishiyama, H. Miyatake, M. Okada, Y. X. Watanabe, S. Ichikawa, H. Kabumoto, M. Matsuda, A. Osa, and Y. Otokawa

Conference Program 313
List of Participants 319
Author Index 325