

CONTENTS

Topics

1. Hadron resonances with coexistence of different natures
A. Hosaka, T. Hyodo, D. Jido, H. Nagahiro, K. Nawa, S. Ohkoda, S. Ozaki, Y. Yamaguchi, S. Yasui

I EXPERIMENTAL NUCLEAR PHYSICS

Nuclear Reactions and Structure

1. (${}^3\text{He}, t$) reaction on ${}^{78}\text{Se}$ for the derivation of reliable $B(GT)$ values
Y. Fujita, T. Adachi, H. Fujita, H. Dohmann, M. Dozono, D. Frekers, E.-W. Grawe, K. Hatanaka, N.T. Khai, D. Ishikawa, H. Matsubara, H. Okamura, Y.Y. Oo, T. Ruhe, K. Suda, A. Tamii, T.D. Thiep, J.H. Thies, H.P. Yoshida
2. (${}^3\text{He}, t$) reaction on ${}^{118}\text{Sn}$ and ${}^{120}\text{Sn}$ for the derivation of reliable $B(GT)$ values
Y. Fujita, H. Fujita, T. Adachi, N.T. Khai, H. Dohmann, M. Dozono, D. Frekers, E.-W. Grawe, K. Hatanaka, D. Ishikawa, H. Matsubara, H. Okamura, Y.Y. Oo, T. Ruhe, K. Suda, A. Tamii, T.D. Thiep, J.H. Thies, H.P. Yoshida
3. Peak deconvolution software SFIT
H. Fujita, Y. Fujita, S. Morinobu
4. Test Experiment: (${}^3\text{He}, {}^3\text{He}'$) Reaction at 510 MeV (170 MeV/nucleon)
T. Itoh, H. Fujita, Y. Shimbara, Y. Fujita, B. Bilgier, E. Ganioğlu, K. Hatanaka, T. Kawabata, H.C. Kozer, G. Susoy, T. Suzuki, A. Tamii, Y. Yasuda
5. Pigmy E1 and giant M1 resonances in $N = 50$ isotones, ${}^{88}\text{Sr}$, ${}^{90}\text{Zr}$ and ${}^{92}\text{Mo}$
C. Iwamoto, H. Utsunomiya, A. Tamii, H. Akimune, T. Yamagata, A. Okamoto, T. Kondo, T. Suzuki, H. Hujita, T. Shima, Y. Hatanaka, Y. Hujita, T. Kawabata, Y. Shimbara, M. Nagashima, M. Sakuda, T. Mori, T. Izumi, Y.-W. Lui, B. Bilgier, H. C. Kozer
6. Proton spin-orbit splitting in ${}^{18}\text{O}$ studied by the ($\vec{p}, 2p$) reaction at 200 MeV
S. Kawase, T. Uesaka, S. Ota, H. Tokieda, Y. Kikuchi, K. Kisamori, M. Takaki, H. Matsubara, M. Dozono, T. Kawahara, T. Kawabata, Y. Nozawa, N. Yokota, T. Noro, T. Wakasa, M. Okamoto, Y. Maeda, T. Saito, H. Miyasako, A. Tamii, T. Suzuki
7. Unit cross section for isoscalar and isovector spin- $M1$ transition strengths from (p, p') cross section measured at $E_p = 295$ MeV

*H. Matsubara, A. Tamii, T. Adachi, J. Carter, M. Dozono, H. Fujita,
 K. Fujita, Y. Fujita, N. Fujita, K. Hatanaka, D. Ishikawa, M. Itoh, M. Kato,
 T. Kawabata, S. Kuroita, Y. Maeda, H. Nakada, K. Nakanishi,
 P. von Neumann-Cosel, R. Neveling, A. Nonaka, H. Okamura, B. Ozel,
 A. Perez, L.A. Popescu, I. Poltoratska, A. Richter, B. Rubio, H. Sakaguchi,
 S. Sakaguchi, Y. Sakemi, Y. Sasamoto, Y. Shimbara, Y. Shimizu, F.D. Smit,
 K. Suda, Y. Tameshige, H. Tokieda, R. Yamada, Y. Yamada, M. Yosoi, and
 J. Zenihiro*

8. Quenching phenomena in isoscalar and isovector spin- $M1$ transitions
H. Matsubara, A. Tamii, on behalf of the E249 and E299 collaborations
9. Indication of spin-unsaturated ground state in $N = Z$ even-even nuclei
H. Matsubara, A. Tamii, on behalf of the E249 and E299 collaborations
10. Estimation of isospin mixing degree in isoscalar 1^+ state
H. Matsubara, A. Tamii, on behalf of the E249 and E299 collaborations
11. Observation of Ramsey Resonance using Ultracold Neutrons
*R. Matsumiya, Y. Masuda, S. Kawasaki, S. Jeong, Y. Watanabe, T. Adachi,
 K. Hatanaka, K. Matsuta, D. Nishimura, M. Mihara, T. Sakurai, J. Martin,
 C. Davis, L. Lee, D. Ramsey, L. Buchmann, A. Miller, A. Konaka, T. Dawson,
 C. Bidinosti, E. Korkmaz, W. van Oers*
12. Search for high-spin isomers in $N = 80$ isotones
*C. Petrache, R. Leguillon, Y. Ito, H. Nishibata, D. Curien, D. Beaumel,
 P. Desesquelles, D. Guinet, G. Lehaut, J. Takatsu, K. Tajiri, N. Hamatani,
 R. Yokoyama, A. Odahara, T. Shimoda, E. Ideguchi, T. Suzuki, H. Watanabe,
 Y. Wakabayashi, K. Yoshinaga, S. Nishimura*
13. Isospin-generalized proton elastic scattering from ^{116}Sn and ^{120}Sn at 170 MeV
*S. Sakaguchi, T. Uesaka, T. Wakasa, H. Sakaguchi, R. Chen, M. Dozono,
 S. Kawase, Y. Maeda, H. Miyasako, M. Okamoto, S. Ota, H. Sakai, T. Saito,
 M. Sasano, T. Shima, T. Suzuki, A. Tamii, S. Terashima, H. Tokieda,
 K. Hatanaka, Y. Yasuda, K. Yako*
14. Fragment DDX on C, N, O, Al, Ti Cu for $E_p=140, 200, 300$ MeV
*T. Sanami, M. Hagiwara, H. Iwase, M. Takada, D. Satoh, H. Yashima,
 T. Kajimoto, Y. Iwamoto, S. Kamada, Y. Nakane, S. Kunieda, A. Tamii,
 K. Hatanaka*
15. Measurement of neutron elastic scattering cross sections in intermediate energy region
*D. Satoh, Y. Iwamoto, T. Sato, A. Endo, M. Hagiwara, H. Iwase, T. Sanami,
 H. Yashima, A. Tamii, K. Hatanaka*
16. High Resolution ($^3\text{He}, t$) Reaction on ^9Be Target Nucleus
*C. Scholl, Y. Fujita, T. Adachi, P. von Brentano, H. Fujita, M. Górska,
 H. Hashimoto, K. Hatanaka, D. Ishikawa, H. Matsubara, K. Nakanishi,
 T. Ohta, Y. Sakemi, Y. Shimbara, Y. Shimizu, Y. Tameshige, A. Tamii,
 M. Yosoi, R.G.T. Zegers*

17. Measurement of the double charge exchange reaction by means of (^{11}B , ^{11}Li) reaction at 80 MeV/A
K. Takahisa, H. Ejiri, S. Yosoi, T. Shima, A. Tamii, T. Suzuki, Y. Yasuda, H. Fujita, R. Matsumiya, T. Ohta, H. Akimune, M. Tanaka
18. Heavy-ion double charge exchange study via the (^{18}O , ^{18}Ne) reaction
M. Takaki, H. Matsubara, T. Uesaka, S. Ota, S. Kawase, T. Kawabata, Y. Kikuchi, K. Kisamori, S. Sakaguchi, Y. Sasamoto, S. Shimoura, T. Suzuki, J. Zenihiro, K. Takahisa, A. Tamii, H. Tokieda, M. Dozono, S. Noji, K. Hatanaka, Y. Maeda, S. Michimasa, H. Miya, H. Miyasako, K. Yako, Y. Yasuda
19. Spectroscopy of $^{13,14}\text{B}$ via Transfer Reaction and Development of Strip Si Detector
J. Tanaka, H.J. Ong, I. Tanihata, H. Sakaguchi, S. Shimoura, S. Ota, H. Matsubara, T. Kawabata, K. Matsuta, M. Fukuda, M. Mihara, D. Nishimura, J. Zenihiro, A. Tamii, T. Suzuki, K. Hirota, T. Naito, M. Taniguchi, T.T. Nguyen
20. Determination of Proton Distribution Radii of $p - sd$ Shell Nuclei by Charge-Changing Cross Sections Measurements
N. T. Tho, T. Naito, M. Taniguchi, H. J. Ong, M. Fukuda, D. Nishimura, J. Tanaka, K. Hirota, K. Iwamoto, T. Kawabata, K. Matsuta, M. Mihara, S. Momota, D. Nagae, A. Ozawa, H. Sakaguchi, H. Suzuki, T. Suzuki, M. Takechi, A. Tamii, H. Uenishi, M. Yaguchi, T. Yamaguchi, K. Yokoyama, I. Tanihata [RCNP-E333 Collaboration]

Quark-Lepton Nuclear Physics

1. A new intense DC muon source, MuSIC
A. Sato, T. Adachi, T. Ogitsu, Y. Kuno, H. Sakamoto, Y. Hatanaka, S. Hikida, M. Fukuda, Y. Mori, A. Yamamoto, M. Yoshida, T. Hoai, N. Truong, S. Cook , R. D'Arcy
2. Study for Double Beta Decay of ^{48}Ca with CANDLES at Kamioka
S. Umehara, T. Kishimoto, M. Nomachi, K. Matsuoka, K. Ichimura, G. Ito, K. Yasuda, H. Kakubata, M. Miyashita, M. Saka, K. Seki, K. Takubo, W. Wang, S. Ajimura, N. Nakatani, Y. Tamagawa, I. Ogawa, R. Hazama, K. Fushimi, H. Ohsumi, K. Okada, S. Yoshida
3. Startup of the LEPS2 Construction
M. Yosoi (for the LEPS2 Collaboration)

Nuclear Astrophysics

1. Stellar Neutron Sources and s-Process in Massive Stars
R. Talwar, G.P.A. Berg, T. Adachi, M. Couder, H. Fujita, Y. Fujita, J. Görres, M.N. Harakeh, K. Hatanaka, T. Ito, A. Long, A. Matic, H. Matsubara, J. Matta, M. Nagashima, T. Ogura, D. Patel, Y. Sakemi, H. Schatz, Y. Shimbara, Y. Shimizu, T. Suzuki, A. Tamii, T. Wakasa, M. Wiescher, Y. Yasuda, M. Yosoi, J. Zenihiro

Nuclear Engineering

1. Irradiation Effect of Spallation Neutrons on SiC Power Diodes
H. Asai, K. Sugimoto, I. Nashiyama, Y. Iide, K. Shiba, M. Matsuda, Y. Miyazaki, M. Fukuda, K. Takahisa, K. Hatanaka
2. Measurements of Neutron Induced Single Event Multiple Transients
M. Hashimoto, R. Harada
3. Mitigation Techniques on a 65nm CMOS Technology against Soft Errors induced by High-energy Neutrons
K. Kobayashi, J. Furuta, C. Hamanaka, R. Yamamoto, K. Kubota, H. Onodera

II THEORETICAL PHYSICS

Quark-Hadron Nuclear Physics

1. Border between Normal and Hindered Fusion
Y. Abe, C. Shen, D. Boilley, B.G. Giraud
2. Molecular Resonances and Angular Correlations
Y. Abe, E. Uegaki
3. Analytic Study of Fusion Probability in Heavy-Ion Collisions
Y. Abe, C. Shen, D. Boilley, B.G. Giraud
4. Pseudoscalar Mesons in the $SU(3)$ Linear Sigma Model with Gaussian Functional Approximation
H.X. Chen, V. Dmitrasinovic, H. Toki
5. Resonances generated from vector meson-baryon dynamics.
K. P. Khemchandani, H. Kaneko, H. Nagahiro, A. Hosaka
6. Baryon resonances from pseudoscalar-vector coupled dynamics.
K. P. Khemchandani, A. Martínez Torres, H. Kaneko, H. Nagahiro, A. Hosaka
7. The $\pi(1300)$ and evidence for a $f_0(1790)$ resonance.
A. Martínez Torres, K. P. Khemchandani, D. Jido, A. Hosaka
8. Monopole strength of ${}^8\text{He}$ into five-body scattering states
T. Myo, R. Ando, K. Kato
9. Tensor correlation in He isotopes with tensor-optimized shell model
T. Myo, A. Umeyama, H. Toki, K. Ikeda
10. Extended Brueckner-Hartree-Fock theory with pionic correlation for finite nuclei
Y. Ogawa, H. Toki
11. Isospin dependence of surface properties in semi-infinite nuclear matter
N. Nose-Togawa, H. Toki
12. The extended chiral $(\sigma, \pi, \omega, \rho)$ mean-field model
S. T. Uechi, H. Uechi
13. Analysis of exotic bound and scattering states in $\bar{D} - N$ system
Y. Yamaguchi, S. Ohkoda, S. Yasui, A. Hosaka

Theoretical Physics with Supercomputer

1. Multi-fermion excited states in a two-dimensional spinless fermion model
K. Iwano, H. Matsufuru
2. Studies of finite density lattice QCD
K. Nagata, A. Nakamura (XQCD-JAPAN collaboration)

III EXPERIMENTAL FACILITIES AND INSTRUMENTS

Detectors

1. Development of MWDC for the J-PARC E31 experiment
K. Inoue, S. Ajimura, S. Enomoto, S. Kawasaki, H. Noumi for the E31 Collaborator
2. Optimized parameters of vertical drift chambers for heavy ion ^{18}O particle
H. Matsubara, M. Takaki, T. Uesaka, M. Dozono, K. Hatanaka, T. Kawabata, S. Kawase, K. Kisamori, Y. Kikuchi, Y. Maeda, S. Michimasa, H. Miya, H. Miyasako, S. Noji, S. Ota, S. Sakaguchi, Y. Sasamoto, S. Shimoura, T. Suzuki, K. Takahisa, H. Tokieda, A. Tamii, K. Yako, Y. Yasuda, J. Zenihiro
3. New HD gas analyzer system for polarized HD target used by LEPS experiment
T. Ohta, S. Ono, S. Bouchigny, J.-P. Didelez, M. Fujiwara, K. Fukuda, H. Kohri, T. Kunimatsu, C. Morisaki, G. Rouille, M. Tanaka, K. Ueda, M. Uraki, M. Utsuro, S.Y. Wang , M. Yosoi
4. Portable NMR polarimeter system for polarized HD target
T. Ohta, M. Fujiwara, K. Fukuda, H. Kohri, T. Kunimatsu, C. Morisaki, S. Ono, M. Tanaka, K. Ueda, M. Uraki, M. Utsuro, S.Y. Wang, M. Yosoi

IV ACCELERATORS

1. Improvement of the 2.45 GHz ECR proton sourcee
M. Fukuda, H. Yamamoto, K. Hatanaka, T. Yorita, T. Saito, H. Tamura, M. Kibayashi

V COMPUTER AND NETWORK

1. Computer and Network syustem at RCNP
T. Hotta and H. Togawa

VI RADIATION PROTECTION

1. Radiation protection
K. Takahisa, M. Fukuda, H. Hinoshita, M. Kibayashi, T. Suzuki, A. Tamii, K. Tominaga, Y. Toyota

VII EDUCATION

1. A primer course of experimental physics (ATTP2010)
2. Study of alpha-cluster states via the ${}^9\text{Be}({}^7\text{Li},\text{p})$ reaction
3. Observation of alpha cluster structure in ${}^{13}\text{C}$ via ${}^9\text{Be}({}^7\text{Li},\text{d})$ reaction
4. Search for α cluster 2_2^+ states in ${}^{12}\text{C}$
5. Development of Particle Identification with a Broad Dynamic Range
6. Life at RCNP under the RCNP Visiting Young Scientist Program
N. T. Tho

VIII PUBLICATIONS

8. 1 Publications
8. 2 Conference Proceedings and Presentations
8. 3 Academic Thesis

IX CONFERENCES, WORKSHOPS AND COLLOQUIA

9. 1 International Conferences
9. 2 Domestic Workshops
9. 3 Colloquia

X PERSONNEL

10. 1 Personnel
10. 2 Visiting Scientists
10. 3 Organization
10. 4 General Steering Committee
10. 5 Physics Program Advisory Committee (P-PAC)
10. 6 Beam Program Advisory Committee (B-PAC)
10. 7 Quark Program Advisory Committee (Q-PAC)