8TH CHINA-JAPAN
JOINT NUCLEAR PHYSICS SYMPOSIUM
(CJINPS2012)

Beijing, China 15 – 19 October 2012

EDITORS
Weiping Liu
China Institute of Atomic Energy, Beijing, China

Kichiji Hatanaka
Osaka University, Osaka, Japan

Shengyun Zhu
China Institute of Atomic Energy, Beijing, China

Nori Aoi
Osaka University, Osaka, Japan

All papers have been peer reviewed.

SPONSORING ORGANIZATIONS
Hosted by
China Institute of Atomic Energy

Sponsored by
China Institute of Atomic Energy
National Natural Science Foundation of China
China Center of Advanced Science and Technology
Chinese Nuclear Physics Society
State Key Lab of Nuclear Physics and Technology (Peking University)
Institute of Modern Physics (CAS)
Shanghai Institute of Applied Physics (CAS)
AIP Conference Proceedings, Volume 1533
8th China-Japan Joint Nuclear Physics Symposium
(CJJNPS2012)

Table of Contents

Preface: 8th China-Japan Joint Nuclear Physics Symposium
Weiping Liu, Kichiji Hatanaka, Shengyun Zhu, and Nori Aoi 1

Symposium Organization 2

Symposium Poster 3

Symposium Photograph 4

Importance of international cooperation especially between China and Japan
Akito Arima 5

Introduction to a new “973” project: New physics at the limit of nuclear stability

RCNP cyclotron facility and application program
Kichiji Hatanaka 17

Nuclear reaction studies at the China institute of atomic energy
C. J. Lin, H. M. Jia, F. Yang, X. X. Xu, H. Q. Zhang, Z. H. Liu, L. Yang,
P. F. Bao, and L. J. Sun 25

New concept in clusterings and alpha-particle condensates
Y. Funaki, H. Horiuchi, Zhongzhou Ren, G. Röpke, P. Schuck,
A. Tohsaki, Chang Xu, T. Yamada, and Bo Zhou 33

Effects of initial state fluctuations on jet energy loss
Hanzhong Zhang, Taesoo Song, and Che Ming Ko 41

Dihadron, γ-hadron and γ+jet correlations in relativistic heavy-ion collisions
Guo-Liang Ma 51
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exact conservation and breaking of pseudospin symmetry in single particle resonant states</td>
<td>Bing-Nan Lu, En-Guang Zhao, and Shan-Gui Zhou</td>
<td>63</td>
</tr>
<tr>
<td>Present status of the KISS project</td>
<td>H. Miyatake and KISS Collaboration</td>
<td>84</td>
</tr>
<tr>
<td>Experimental studies on the primordial lithium abundance</td>
<td>Zhihong Li, Ertao Li, Jun Su, Bing Guo, Weiping Liu, Yunju Li, Yongshou Chen, Suqing Hou, Xixiang Bai, Shengquan Yan, Youbao Wang, Baoxiang Wang, Sheng Zeng, Gang Lian, Sunjun Jin, and Xin Liu</td>
<td>91</td>
</tr>
<tr>
<td>The coordinate-space Hartree-Fock-Bogoliubov approach for describing weakly-bound deformed nuclei</td>
<td>J. C. Pei, Y. N. Zhang, and F. R. Xu</td>
<td>96</td>
</tr>
<tr>
<td>Three-body force effect on the EOS and single particle properties of asymmetric nuclear matter</td>
<td>Zuo Wei</td>
<td>101</td>
</tr>
<tr>
<td>Comparison of the coupled-channel calculation with the WKB method for $\alpha$-decay fine structure</td>
<td>Dongdong Ni and Zhongzhou Ren</td>
<td>109</td>
</tr>
</tbody>
</table>
Search for neutrino-less double beta decay by CANDLES
S. Umehara, T. Kishimoto, M. Nomachi, S. Yoshida, S. Ajimura,
K. Suzuki, K. Ichimura, K. Matsuoka, N. Nakatani, G. Ito, H. Kakubata,
M. Saka, W. Wang, J. Takemoto, W. Chan, M. Doihara, Y. Tamagawa,
A. Kawamura, T. Harada, K. Fushimi, R. Hazama, H. Ohsumi,
and K. Okada

Predictions of unknown nuclear masses by local mass relations in terms
of neutron-proton interactions
G. J. Fu and Y. M. Zhao

Nucleon structure and two-photon exchange
Dian-Yong Chen

Search for electron EDM with laser cooled radioactive atom
T. Inoue, H. Arikawa, S. Ezure, K. Harada, T. Hayamizu, T. Ishikawa,
M. Itoh, T. Kato, H. Kawamura, H. S. Nataraj, T. Sato, T. Aoki,
T. Furukawa, A. Hatakeyama, K. Hatanaka, K. Imai, T. Murakami,
Y. Shimizu, T. Wakasa, H. P. Yoshida, and Y. Sakemi

Magnetic moments for nucleus with double-closed core ± one nucleon
J. Li, J. X. Wei, J. N. Hu, and J. Meng

Nuclear structure around $^{32}$Mg via proton resonance elastic scattering
N. Imai

Magnetic rotation in $^{139}$Pm nucleus and introduction on a new Ge
detector array
N. T. Zhang, X. H. Zhou, Y. H. Zhang, Y. X. Guo, X. G. Lei, M. L. Liu,
Y. Zheng, Y. D. Fang, J. G. Wang, S. Guo, Y. H. Qiang, X. G. Wu,
and Y. Zheng

Reduced transition probabilities of the $0_{gs}^{+} \rightarrow 2_{1}^{+}$ transitions in $^{28}$Mg, $^{28}$S
and $^{36}$Ca
Naohito Iwasa, R351n Collaboration, and R407n Collaboration

Progress in neutron scattering at CIAE
M. M. Wu, Y. T. Liu, and D. F. Chen

Status of carbon-ion radiotherapy facilities in Japan
Atsushi Kitagawa

vii
Progress in heavy ion cancer therapy at IMP
Qiang Li, Xinguo Liu, Zhongying Dai, Guosheng Shen, Pengbo He,
Qiyan Huang, Yuanlin Yan, Xiaodong Jin, Fei Ye, and Guoqing Xiao 174

Effect of triple ion beams on radiation damage in CLAM steel
Shengyun Zhu, Yongnan Zheng, Daqing Yuan, Yi Zuo, Ping Fan,
Dongmei Zhou, Qiaoli Zhang, Xiaoqiang Ma, Baoqun Cui, Lihua Chen,
Weisheng Jiang, Yican Wu, Quanying Wang, Lei Peng, Xinzhong Cao,
Baoyi Wang, and Long Wei 179

The 6 MV tandem accelerator project for nuclear physics and ion beam
applications at the University of Tsukuba
Kimikazu Sasa 184

Coming 5-year plan of J-PARC hadron experimental facility
Kazuhiro Tanaka 189

Symposium Program 197

List of Participants 207

Author Index 215