

Workshop on  
*Future Prospects of Hadron Physics at J-PARC  
and Large Scale Computational Physics in 2013*

\* February 11-13, 2013

\* 2F Conference room, Ibaraki Quantum Beam Research Center (IQBRC)

**Program**

===== February 11 =====  
9:30 – 10:00 (30)            Registration

\*\*\* Session 1 “J-PARC, Strangeness”

Chair: Hirokazu Tamura (Tohoku University)

10:00 – 10:10 (10)            Shunzo Kumano (KEK)

*J-PARC theory activities*

10:10 – 10:50 (35+5)        Kyoichiro Ozawa (KEK)

*Hadron physics experiments at J-PARC*

10:50 – 11:30 (35+5)        Thomas Rijken (University of Nijmegen)

*ESCO8-models of baryon-baryon interactions*

11:30 – 12:05 (30+5)        Kenji Sasaki (University of Tsukuba)

*Baryon-baryon interactions in strangeness sector from lattice QCD*

12:05 – 13:10 (65)            Lunch

\*\*\* Session 2 “J-PARC, Neutrino, Nuclear matter”

Chair: Toshitaka Kajino (NAO)

13:10 – 13:20 (10)            Kazuhiro Tanaka (KEK)

*Welcome address*

13:20 – 14:00 (35+5)        Toru Sato (Osaka University)

*Neutrino-nucleus reaction from a few hundred MeV to GeV region*

14:00 – 14:25 (20+5)        Myung-Ki Cheoun (Soongsil University)

*Density effects in neutrino reactions in nuclear matter*

14:25 – 14:50 (20+5) Koji Hashimoto (Osaka University)

*A mechanism of ferromagnetism at high density matter and neutron stars*

14:50 – 15:10 (20) Break

\*\*\* Session 3 “Strangeness (Hypernuclei)”

Chair: Emiko Hiyama (RIKEN)

15:10 – 15:50 (35+5) John Millener (Brookhaven National Laboratory)

*Shell-model calculations for light hypernuclei*

15:50 – 16:10 (15+5) Masahiro Isaka (Hokkaido University)

*Structure of triaxially deformed hypernucleus  $^{25}_{\Lambda}\text{Mg}$*

16:10 – 16:35 (20+5) Takahisa Koike (RIKEN)

*Formation of light  $\Xi$  hypernucleus by ( $K$ ,  $K^+$ ) reactions*

16:35 – 16:55 (15+5) Hitoshi Sugimura (Kyoto University)

*Production of  $^6_{\Lambda}\text{H}$  neutron-rich hypernuclei via the ( $\pi^-$ ,  $K^+$ ) reaction at J-PARC*

16:55 – 17:15 (20) Break

\*\*\* Session 4 “Strangeness (Kaonic nuclei)”

Chair: Baha Balantekin (University of Wisconsin)

17:15 – 17:40 (20+5) Takumi Muto (Chiba Institute of Technology)

*Coexistence of antikaons and hyperons in finite nuclei*

17:40 – 18:05 (20+5) Takayasu Sekihara (KEK)

*Internal structure of the resonant  $\Lambda(1405)$  state in chiral dynamics*

18:05 – 18:25 (15+5) Yudai Ichikawa (Kyoto University)

*Search for a nuclear kaon bound state  $Kpp$  at the J-PARC*

18:35 – Party at KOURYU plaza (IQBRC 2F)  
Sinya Aoki (University of Tsukuba)

===== February 12 =====

\*\*\* Session 5 “Neutron star, Strangeness”

Chair: Takumi Muto (Chiba Institute of Technology)

9:15 – 9:55 (35+5) David Blaschke (University of Wroclaw)

*Theory of dense compact star matter - methods, problems and perspectives*

9:55 – 10:20 (20+5) Tatsuyuki Takatsuka (Iwate University)

*Cooling of hyperon-mixed neutron stars*

10:20 – 10:45 (20+5) Tetsuo Hatsuda (RIKEN)

*Meson condensation analogs in ultracold atomic and molecular dipolar gases*

10:45 – 11:05 (20) Break

\*\*\* Session 6 “Neutron star, Nuclear matter”

Chair: Kazuma Nakazawa (Gifu University)

11:05 – 11:30 (20+5) Hiroyuki Sako (JAEA)

*Search for H-dibaryon at J-PARC E42 experiment*

11:30 – 11:55 (20+5) Toshiki Maruyama (JAEA)

*Structure of nuclear matter in compact stars*

11:55 – 12:20 (20+5) Shigehiro Yasui (KEK)

*Anti-D and B meson in nuclear medium*

12:20 – 13:25 (65) Lunch

\*\*\* Session 7 “Neutron star, Dense matter”

Chair: Masayuki Matsuzaki (Fukuoka University of Education)

13:25 – 14:05 (35+5) Mark Alford (Washington University)

*Quark matter in neutron stars*

14:05 – 14:25 (15+5) Kota Masuda (University of Tokyo)

*Hadron-quark crossover and massive hybrid stars with strangeness*

14:25 – 14:45 (20) Break

\*\*\* Session 8 “Nucleon structure”

Chair: Kazuhiro Tanaka (Juntendo University)

14:45 – 15:25 (35+5) Wally Melnitchouk (JLab)

*Nucleon structure at JLab and J-PARC*

15:25 – 15:50 (20+5) Shunzo Kumano (KEK)

*Hadronic structure studies at J-PARC*

15:50 – 16:15 (20+5) Hiroyuki Kawamura (KEK)

*Hadron production in hard processes*

16:15 – 16:40 (20+5) Shinsuke Yoshida (University of Tsukuba)

*Double spin asymmetries in polarized Drell-Yan processes*

16:40 – 17:00 (20) Break

\*\*\* Session 9 “Lattice QCD, Hadron physics”

Chair: Shoji Hashimoto (KEK)

17:00 – 17:40 (35+5) Huey-Wen Lin (University of Washington)

*Hadronic physics from lattice QCD*

17:40 – 18:05 (20+5) Bruno Charron (University of Tokyo)

*Pion-pion interaction from lattice QCD*

18:05 – 18:30 (20+5) Gergely Fejos (RIKEN)

*Spontaneous symmetry breaking patterns in the  $U(n)\times U(n)$  meson model*

===== February 13 =====

\*\*\* Session 10 “Charm, Exotic”

Chair: Osamu Morimatsu (KEK)

9:15 – 9:40 (20+5) Kazuyuki Sakai (KEK)

*Charmed hadrons at Belle*

9:40 – 10:05 (20+5) Yusuke Namekawa (University of Tsukuba)

*Charm quark physics from lattice QCD at the physical point*

10:05 – 10:30 (20+5) Kiyoshi Tanida (Seoul National University)

*Plans on determination of quantum numbers of  $\Lambda_c(2765)$  and a note on the parity of  $\Lambda_c(2880)$*

10:30 – 10:55 (20+5) Yan-Rui Liu (Shandong University)

*Do  $J^{PC}=3^{++}$  mesons exist?*

10:55 – 11:15 (20) Break

\*\*\* Session 11 “Charmed nuclei”

Chair: Tetsuo Hyodo (Tokyo Institute of Technology)

11:15 – 11:40 (20+5) Akinobu Dote (KEK)

*Quasi-bound states of a DNN system*

11:40 – 12:00 (15+5) Yasuhiro Yamaguchi (Osaka University)

*Exotic baryons from a heavy meson and a nucleon*

12:00 – 12:20 (15+5) Akira Yokota (Tokyo Institute of Technology)

*Possible existence of charmonium-nucleus bound states*

12:20 – 13:25 (65) Lunch

\*\*\* Session 12 “Strangeness, Heavy quark”

Chair: Makoto Oka (Tokyo Institute of Technology)

13:25 – 13:45 (15+5) Shunsuke Ohkoda (Osaka University)

*Decays and productions via bottomonium for  $Z_b$  resonances and other  $BB^{bar}$  molecules*

13:45 – 14:05 (15+5)      Kei Suzuki (Tokyo Institute of Technology)  
*Thermal modification of quarkonium spectra based on QCD sum rules and maximum entropy method*

14:05 – 14:30 (20+5)      Megumi Naruki (KEK)  
*Recent results from pentaquark search experiments*

14:30 – 14:55 (20+5)      Ken-ichi Imai (JAEA)  
*Study of odd parity hyperon resonances at J-PARC*

14:55                              Adjourn

*\* Optional tour*

*15:30 – 16:30      J-PARC Hadron-hall tour*