

# KEK theory center workshop on Hadron and Nuclear Physics in 2017 (KEK-HN-2017)

January 7 - 10, 2017, Kobayashi Hall, KEK, Tsukuba, Japan

<http://research.kek.jp/group/hadron10/kek-hn-2017/>

Local Organizers: Akinobu Dote, Kazunori Itakura, Hiroyuki Kamano

Shunzo Kumano\*, Osamu Morimatsu (KEK) \* Corresponding organizer

Advisory Committee: Masayuki Asakawa (Osaka Univ), Kenji Fukushima (Tokyo Univ),

Masayasu Harada (Nagoya Univ), Tetsuo Hatsuda (RIKEN),

Yoshitaka Hatta (Kyoto Univ, YITP), Satoru Hirenzaki (Nara Women's Univ),

Atsushi Hosaka (Osaka Univ, RCNP), Yuji Koike (Niigata Univ),

Teiji Kunihiro (Kyoto Univ), Makoto Oka (Tokyo Tech/JAEA),

Shoichi Sasaki (Tohoku Univ)

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## January 7 (Saturday)

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8:30 - 9:10 Registration

Chair: Osamu Morimatsu (KEK/J-PARC)

9:10 - 9:20

Organizer, Shunzo Kumano (KEK/J-PARC)

Welcome

9:20 - 10:00 (30+10)

Atsushi Hosaka (Osaka University)

Charmed baryons

10:00 - 10:40 (30+10)

Hiroyuki Noumi (Osaka University/KEK)

Charmed-hadron physics and physics  
of hadron-hall extension at J-PARC

10:40 - 11:10 coffee

Chair: Kiyoshi Tanida (JAEA)

11:10 - 11:50 (30+10)

Bing-Song Zou (Institute of Theoretical Physics)

Heavy exotic hadrons

11:50 - 12:30 (30+10)

Kenkichi Miyabayashi (Nara Women's University)

Heavy exotic hadrons at KEKB

12:30 - 13:30 lunch

Chair: Makoto Takizawa (Showa Pharmaceutical University/KEK)

13:30 - 14:00 (25+5)

Sachiko Takeuchi (Japan College of Social Work)

Y(4260) is an authentic resonance?

14:00 - 14:30 (25+5)

Sadaharu Uehara (KEK)

Two-photon physics and light-hadron spectroscopy at KEKB

Chair: Munehisa Ohtani (Kyorin University)

14:30 - 15:00 (25+5)

Ralf Seidl (RIKEN)

Fragmentation functions at KEKB

15:00 - 15:30 (25+5)

Cungwen Kao (Chung Yuan Christian University)

Dihadron fragmentation functions  
in chiral models

**15:30 - 17:30 coffee, Poster session**

- Ahmad Jafar Afiri (Osaka University)      Systematic study of charmed baryon decay**
- Rui Chen (Osaka University)      Is the newly reported X(5568) a B-Kbar molecular state?**
- Takashi Ezoe (Osaka University)      Kaon-Nucleon systems in the Skyrme model**
- Kouhei Hanzawa (Graduate U for Advanced Studies/KEK)      Two-charmed-baryons system on one boson exchange potential model**
- Norihiko Kamata (Tohoku University)      Discretization effects beyond the tree-level in lattice Yang-Mills gradient flow**
- Mamiya Kawaguchi (Nagoya University)      Charged pions probing strong CP violation in chiral-imbalance medium**
- Kazuki Nochi (Tohoku University)      Lattice study of charmonium potentials from Bethe-Salpeter amplitudes**
- Aaron Park (Yonsei University)      Heptaquarks with two heavy antiquarks in a simple chromomagnetic model**
- Noriyuki Sogabe (Keio University)      New dynamic critical phenomena in nuclear and quark superfluids**
- Qin-Tao Song (Graduate U for Advanced Studies/KEK)      Estimate on tensor-polarization asymmetry for proton-deuteron Drell-Yan process at Fermilab**
- Daiki Suenaga (Nagoya University)      Spectral function for excited Dbar meson as the signal of partial restoration of chiral symmetry in the nuclear matter**
- Natsuki Tsukamoto (Tohoku University)      Model independent analysis on the data of nucleon form factors in lattice QCD near the physical point**
- Dan Zhou (Beihang University/Osaka University)       $K^*(892)$  resonance in finite volume**

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**17:45 - 19:45 Get-together party**

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## January 8 (Sunday)

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**Chair: Kenji Fukushima (Tokyo University)**

**9:00 - 9:40 (30+10)**

**Jacobus Verbaarschot (Stony Brook University)**

**Random matrix theory**

**9:40 - 10:20 (30+10)**

**Andreas Schaefer (University of Regensburg)**

**Hadron physics from lattice QCD**

**10:20 - 10:50 coffee**

**Chair: Kazunori Itakura (KEK/J-PARC)**

**10:50 - 11:30 (30+10)**

**Igor Shovkovy (Arizona State University)**

**Physics of strong magnetic field**

**11:30 - 12:00 (25+5)**

**Koichi Hattori (Fudan University)**

**Transport phenomena in strong magnetic fields**

**12:00 - 12:30 (25+5)**

**Kei Suzuki (Tokyo Institute of Technology)**

**Heavy hadron physics in a magnetic field**

**12:30 - 13:30 lunch**

**Chair: Yuji Goto (RIKEN)**

**13:30 - 14:10 (30+10)**

**Oleg Teryaev (Joint Institute for Nuclear Research)**

**Coordinate vs momentum space  
tomography of hadrons**

**14:10 - 14:50 (30+10)**

**Wen-Chen Chang (Academia Sinica)**

**High-energy hadron physics at J-PARC**

**14:50 - 15:20 coffee**

**Chair: Kazuhiro Tanaka (Juntendo University/KEK)**

**15:20 - 16:00 (30+10)**

**Mark Strikman (Pennsylvania State University)**

**Hard phenomena in hadron-nucleus  
scattering**

**16:00 - 16:40 (30+10)**

**Jen-Chieh Peng (University of Illinois)**

**Lepton angular distributions  
in the Drell-Yan process**

**16:40 - 17:20 (30+10)**

**Yoshitaka Hatta (Kyoto University)**

**How to measure the gluon orbital angular momentum  
in the nucleon**

**17:20 - 17:50 (25+5)**

**Matthias Berwein (Tohoku University)**

**NNLO calculation of the Polyakov loop**

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## January 9 (Monday)

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**Chair: Teiji Kunihiro (Kyoto University)**

**9:00 - 9:40 (30+10)**

**Su Houng Lee (Yonsei University)**

**Hadron properties in nuclear medium**

**9:40 - 10:20 (30+10)**

**Masayasu Harada (Nagoya University)**

**Charmed meson masses in medium based  
on an effective chiral model**

**10:20 - 10:50 coffee**

**Chair: Tetsuo Hatsuda (RIKEN)**

**10:50 - 11:30 (30+10)**

**Satoru Hirenzaki (Nara Women's University)**

**Meson properties from mesic atoms  
and mesic nuclei**

**11:30 - 12:10 (30+10)**

**Kei Iida (Kochi University)**

**Neutron star physics**

**12:10 - 13:10 lunch**

**Chair: Yasushi Nara (Akita International University)**

**13:10 - 13:50 (30+10)**

**Huichao Song (Peking University)**

**High-energy nuclear collisions and hydrodynamics**

**13:50 - 14:30 (30+10)**

**Masakiyo Kitazawa (Osaka University/KEK)**

**Heavy-ion physics at J-PARC**

**14:30 - 15:10 (30+10)**

**Takumi Doi (RIKEN)**

**Bayron-baryon interaction from lattice QCD**

**15:10 - 15:40 coffee**

**Chair: Hirotsugu Fujii (Tokyo University)**

**15:40 - 16:10 (25+5)**

**Toru Harada (Osaka Electro-Communication University/KEK)**

**Production of  
 $\Sigma$ NN quasibound states**

**16:10 - 16:40 (25+5)**

**Yu Maezawa (Kyoto University)**

**Determination of fundamental parameters  
in QCD from lattice simulations**

**16:40 - 17:10 (25+5)**

**Aiichi Iwazaki (Nishogakusha University)**

**Chiral symmetry breaking  
by monopole condensation**

**17:10 - 17:40 (25+5)**

**Sho Ozaki (Keio University)**

**QCD Kondo effect from CFT**

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## January 10 (Tuesday)

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**Chair: Megumi Naruki (Kyoto University)**

**9:00 - 9:40 (30+10)**

**Hirokazu Tamura (Tohoku University)**

**Strangeness hadron physics at J-PARC**

**9:40 - 10:20 (30+10)**

**Igor Strakovsky (George Washington University)**

**Physics perspectives  
for future K-long facility**

**10:20 - 11:00 coffee**

**Chair: Hiroyuki Kamano (KEK)**

**11:00 - 11:40 (30+10)**

**Terry Mart (University of Indonesia)**

**Hunting for nucleon resonances  
by using kaon photoproduction**

**11:40 - 12:20 (30+10)**

**Toru Sato (Osaka University/KEK)**

**Neutrino-nucleon interactions in the few-GeV region**

**12:20 - 13:10 lunch**

**Chair: Yoshinori Akaishi (RIKEN)**

**13:10 - 13:50 (30+10)**

**Akinobu Dote (KEK/J-PARC)**

**Kaonic nuclei**

**13:50 - 14:20 (25+5)**

**Satoshi Nakamura (Osaka University)**

**Extracting eta-nucleon scattering amplitude  
from  $\gamma d \rightarrow \eta n p$**

**14:20 - 14:30 (10)**

**Adjourn**

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