

# Young Scientist Award of the Physical Society of Japan

Every year, the Physical Society of Japan presents Young Scientist Awards to young researchers who have made outstanding achievements in their early research careers. This year's winners were recently decided by the board of directors of the JPS according to the recommendations from the selection committees established in 19 divisions of the JPS. The maximum number of winners from each division has been determined based on the number of talks given at the Annual Meetings in the past three years. All the winners are to give an award lecture at the next Annual Meeting of the JPS scheduled for March 2017. Here is the list of winners and their research topics.

## **Theoretical Particle Physics:**

Yuta Hamada (KEK)

“Implication of the Higgs Discovery on Beyond-the-Standard-Model Physics”

Hiroki Makino (Kyushu University)

“Energy-momentum tensor in lattice field theories from the gradient flow”

Yuki Yokokura (RIKEN)

“Research on black hole entropy”

## **Experimental Particle Physics:**

Shingo Kazama (University of Zurich, Department of Physics)

“Search for Charginos Based on a Disappearing-Track Signature in pp Collisions at  $\sqrt{s} = 8 \text{ TeV}$ ”

Tatsuya Kikawa (RCNP, Osaka University)

“Measurement of Neutrino Interactions and Three Flavor Neutrino Oscillations in the T2K Experiment”

Yuki Sakurai (Kavli IPMU, University of Tokyo)

“Evidence for the Higgs boson in the  $\tau^+\tau^-$  final state and its CP measurement in proton-proton collisions with the ATLAS detector”

## **Theoretical Nuclear Physics:**

Tadahiro Suhara (Matsue College of Technology)

“One-dimensional  $\alpha$  condensation of  $\alpha$ -linear-chain states in  $^{12}\text{C}$  and  $^{16}\text{O}$ ”

Yusuke Tsunoda (Center for Nuclear Study, the University of Tokyo)

“Novel shape evolution in exotic Ni isotopes and configuration-dependent shell structure”

Koichi Hattori (Fudan University / RIKEN-BNL Research Center)

“Vacuum birefringence in strong magnetic fields”

## **Experimental Nuclear Physics:**

Yuji Kato (Kobayashi-Masukawa Institute for the Origin of Particle and the Universe, Nagoya University)

“Search for doubly charmed baryons and determination of decay branching ratio of charmed strange baryons at Belle”

### **Cosmic Ray and Astrophysics:**

Hiroki Akamatsu (SRON Netherland Institute for Space Research, Instrument Science & Astrophysics group)

“Xray analysis of radio relic clusters with Suzaku”

Yutaka Ohira (Department of Physics and Mathematics, Aoyama Gakuin University)

“A Theoretical Study on Acceleration and Escape of Cosmic-Rays and Magnetic Field Amplifications in Supernova Remnants”

Kohei Kamada (School of Earth and Space Exploration, Arizona State University)

“Comprehensive study of Higgs inflation”

### **Beam Physics:**

Sohei Imajo (Division of Physics and Astronomy, Graduate School of Science, Kyoto University)

“Generation and analysis of ultra-cold neutrons using a Doppler shifter at J-PARC/MLF”

### **Division 1 (Atomic and Molecular physics, Quantum Electronics, Radiation):**

Shuta Nakajima (Kyoto University)

“Studies of few-body and mesoscopic systems using cold atoms”

Motoaki Bamba (Osaka University)

“Theoretical studies on the ultrastrong light matter coupling”

Yuichiro Matsuzaki (Nippon Telegraph and Telephone Corporation)

“Robust Magnetic Field Sensing Beyond the Standard Quantum Limit”

### **Division 2 (Plasma):**

Hao WANG (Institute for Fusion Science)

“Simulation study of energetic particle driven geodesic acoustic mode”

Tatsuya Kobayashi (Institute for Fusion Science)

“Experimental study on physical mechanism of L-H transition in fusion plasmas”

### **Division 3 (Magnetism):**

Toru Kikuchi (RIKEN)

“Dzyaloshinskii-Moriya Interaction as a Consequence of a Doppler Shift due to Spin-Orbit-Induced Intrinsic Spin Current”

Kenta Kimura (Osaka University)

“Development of Frustrated Magnets and Research on New Magnetic Phenomena”

Kouki Nakata (University of Basel)

“Theoretical Study on the Magnon Transport Phenomena”

### **Division 4 (Semiconductors, Mesoscopic Systems and Quantum Transport):**

Tomohiro Otsuka (Quantum Functional System Research Group, Center for Emergent Matter Science, RIKEN)

“Study of fast control and detection of local electronic states”

Youhei Yamaji (Quantum Phase Electronics Center, Department of Applied Physics, University of Tokyo)

“Theoretical study of new phases made of topological phases and electron correlations”

**Division 5 (Optical Properties of Condensed Matter):**

Toshiyuki Ihara (Institute for Chemical Research, Kyoto University)

“Study on quantum optical properties of single low-dimensional structures via optical excitation-spectroscopy methods”

Makoto Okano (Department of Physics, Faculty of Science and Technology, Keio University)

“Study of hot carrier dynamics in semiconductors by time- and space-resolved optical spectroscopy”

Motoaki Bamba (Department of Materials Engineering Science, Osaka University)

“Superposition of light in free space and localized matters”

**Division 6 (Metal Physics (Liquid Metals, Quasicrystals), Low Temperature Physics (Ultralow Temperatures, Superconductivity, Density Waves)):**

Yoshiki Takagiwa (National Institute for Materials Science, Thermoelectric Materials Group)

“Investigation of new thermoelectric materials using experiment and first principle calculation”

**Division 7 (Molecular Solids):**

Takahiro Ishikawa (Center for Science and Technology under Extreme Conditions, Graduate School of Engineering Science, Osaka University)

“First-principles study on crystal structure and superconductivity of materials under high-pressure”

Makoto Naka (Department of Physics, Tohoku University)

“Magneto-dielectric phenomena induced by intra-dimer charge fluctuation”

Yusuke Nomura (École Polytechnique, France)

“First principles study on high- $T_c$  s-wave superconductivity in alkali-doped fullerenes”

**Division 8 (Strongly Correlated Electron Systems):**

Shunichiro Kittaka (ISSP, The University of Tokyo)

“Study on heavy fermion superconductors using field-angle-resolved specific heat measurements”

Joji Nasu (Department of Physics, Tokyo Institute of Technology)

“Theoretical studies on thermal and dynamical properties in quantum spin liquids”

**Division 9 (Surfaces & Interfaces, Crystal Growth):**

Yoshiyuki Ohtsubo (Graduate School of Frontier Biosciences, and Department of Physics, Graduate School of Science, Osaka University)

“Study of novel quasi-3D and quasi-1D electronic states fabricated on semiconductor surfaces”

Emi Minamitani (Department of Materials Engineering, Graduate School of Engineering, The University of Tokyo)

“Theoretical study of spin and phonon induced many-body effects on surfaces”

**Division 10 (Dielectrics, Ferroelectricity, Lattice Defects and Nanostructures, Phononic Properties, and X-ray and Particle Beams):**

Taketoshi Minato (Office of Society-Academia Collaboration for Innovation, Kyoto University)

“Clarification of physical properties of atomic defects on metal oxide”

**Division 11 (Fundamental Theory of Condensed Matter Physics, Statistical Mechanics, Fluid Dynamics, Applied Mathematics, Socio- and Econophysics):**

Sosuke Ito (Department of Physics, Tokyo Institute of Technology (JSPS Research Fellowships for Young Scientists. PD))

“Development of Information Thermodynamics and Its Application to Biological Systems”

Kuniyasu Saitoh (WPI Advanced Institute for Materials Research, Tohoku University)

“Non-equilibrium statistical physics approach to macroscopic behavior of granular materials”

**Division 12 (Soft Matter Physics • Chemical Physics • Biophysics):**

Ryuichi Okamoto (Department of Chemistry, Tokyo Metropolitan University)

“Theoretical Finding of Novel Solvation Effects in Soft Matter”

Hideyuki Mizuno (Department of Basic Science, Graduate School of Arts and Sciences, the University of Tokyo)

“Theoretical Studies on the Mechanical and Thermal Properties of Glass and Nano structured materials”

**Division 13 (Physics Education, History of Physics, Environmental Physics):**

Takahisa Amemiya (Department of Physics, College of Science and Technology, Nihon University)

“The Path to History, Kōji Husimi's Overseas Inspection of Plasma Physics and Nuclear Fusion Research Laboratories in Europe and USA”