Young Scientist Award of the Physical Society of Japan, 2020

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 2020. Here is the list of winners and their research topics.

Theoretical Particle Physics:

Yuya Kusuki (Yukawa Institute for Theoretical Physics, Kyoto University)
"Two dimensional conformal blocks at light cone limit and their applications"

Sotaro Sugishita (University of Kentucky)
"Asymptotic symmetry-soft photon theorem-memory effect and infrared divergence in QED"

Kotaro Tamaoka (Yukawa Institute for Theoretical Physics, Kyoto University)
"A new quantum information measure for mixed-state entanglement"

Experimental Particle Physics:

Shunsuke ADACHI (Department of Physics, Graduate School of Science, The University of Tokyo)
"Search for gluinos in final states with jets and large missing transverse momentum using 36 fb^{-1} data observed in the ATLAS detector"

Kota NAKAGIRI (Division of Physics and Astronomy, Graduate School of Science, Kyoto University)
"Search for the Decay $K_L \rightarrow \pi^0 \nu\bar{\nu}$ at the J-PARC KOTO Experiment"

Keigo NAKAMURA (Division of Physics and Astronomy, Graduate School of Science, Kyoto University)
"Measurement of Neutrino Oscillation with a High Intensity Neutrino Beam"

Theoretical Nuclear Physics:

Akihiko Monnai (Institute of Particle and Nuclear Studies, High Energy Accelerator Research Organization)
"Equation of state at finite densities for QCD matter in nuclear collisions"

Experimental Nuclear Physics:

Nobuyuki Kobayashi (Research Center for Nuclear Physics, Osaka University)
"Spectroscopy of ^{37}Mg and ^{29}Ne via the Inclusive Breakup Reactions"

Ryo Taniuchi (Department of Physics, University of York)
"^{78}Ni revealed as a doubly magic stronghold against nuclear deformation"

Toshihiro Nonaka (Central China Normal University, Institute of Particle Physics)
"First measurement of the sixth order cumulant of net-proton multiplicity distributions in $\sqrt{s_{NN}}$=200GeV Au+Au collisions at the STAR experiment"

Cosmic Ray and Astrophysics:

Koutaro, Kyutoku (Graduate School of Science, Kyoto University)
"Theoretical studies on multi-messenger astrophysics"

Hirokazu Odaka (School of Science, The University of Tokyo)
"X-Ray Diagnostics of Giant Molecular Clouds in the Galactic Center Region and Past Activity of Sgr A*"

Hirofumi Noda (Graduate School of Science, Osaka University)
"Hitomi observation of radio galaxy NGC 1275"

Beam Physics:

Ryo Kitamura (Japan Atomic Energy Agency)
"Demonstration of the muon acceleration with Radio-Frequency Quadrupole linac"

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

Shimpei Endo (Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)
"Few and many-body studies in unitary Fermi gases"

Alto Osada (Komaba Institute for Science, The University of Tokyo)
"Study on the cavity optomagnonics"

Masaya Nakagawa (Department of Physics, Faculty of Science & Graduate School of Science, The University of Tokyo)
"Theory of the Kondo effect in ultracold atoms in and out of equilibrium"

Division 2 (Plasma):

Motoki NAKATA (National Institute for Fusion Science, National Institutes of Natural Sciences)
"Study of turbulent transport and isotope ion mass effects in magnetically confined plasmas"

Takashi NISHIZAWA (Max-Planck Institute for Plasma Physics)
"Study of drift-wave turbulence in a reversed field pinch plasma"

Division 3 (Magnetism):

Yuki Shiomi (Department of Basic Science, University of Tokyo)
"Observation of novel spin current phenomena in exotic materials"

Tomoya Higo (Institute for Solid State Physics, University of Tokyo)
"Development of novel functions in non-collinear and non-coplanar antiferromagnets"

Hiroyuki Yoshida (Department of Physics, Faculty of Science, Hokkaido University,)
"Development and characterization of new frustrated magnets"

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

Shingo Kobayashi (Institute for Advanced Research, Nagoya University)
"Theoretical studies on topological superconductors with Majorana flat bands"

Masaki Uchida (Department of Applied Physics and Quantum-Phase Electronics Center (QPEC), the University of Tokyo)
"Experimental study on quantum transport in Dirac semimetal films of arsenide materials"

Toshiya Ideue (Quantum-Phase Electronics Center (QPEC) and Department of Applied Physics, The University of Tokyo)

"Nonreciprocal magneto transport in polar semiconductors and superconducting nanotudes"

Division 5 (Optical Properties of Condensed Matter):

Shunsuke Sato (Center for Computational Sciences, University of Tsukuba)
"Theoretical study of attsecond electron dynamics in condenced matter"

Taishi Nishihara (Institute of Advanced Energy, Kyoto Univerisity)
"Study of excitonic optical properties of nano carbon materials"

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

Koichi Kitahara (Department of Advanced Materials Science, The University of Tokyo)
"Study on the electronic structures of quasicrystals and related compounds"

Tsunetomo Yamada (Department of Applied Physics, Faculty of Science Division I, Tokyo University of Science)
"Atomic structures of Tsai-type icosahedral quasicrystals"

Division 7 (Molecular Solids):

Michihiro Hirata (Institute for Materials Research, Tohoku University)
"Discovery of a strongly correlated topological phase in an organic conductor"

Hiroshi Watanabe (RIKEN)
"Theoretical study of novel phases induced by charge degree of freedom and geometrical frustration"

Division 8 (Strongly Correlated Electron Systems):

Rina Takagi (Department of Applied Physics, School of Engineering, The University of Tokyo)
"Study on Magnetic Vortex: Exploration for New Materials and Mechanism"

Daigorou Hirai (Institute for Solid State Physics, The University of Tokyo)
"Material development and exploration of strongly correlated electron properties in 5d transition metal compounds"

Jun Fujioka (Graduate School of Pure and Applied Sciences, University of Tsukuba)
"Exploration of quantum transport properties in strongly crrelated Dirac semimetals"

Takahiro Misawa (Institute for Solid State Physics, The University of Tokyo)
" Theoretical study on high-temperature superconductivity mechanism in Fe-based and cuprate superconductors"

Division 9 (Surfaces & Interfaces, Crystal Growth):

Toshiki Sugimoto (Institute for Molecular Science, National Institute of Natural Sciences)
"Unveiling unique structures and properties of hydrogen bonds of water molecules induced by inversion symmetry breaking at solid surfaces"

Ken-ichiro Murata (Institute of Low Temperature Science, Hokkaido University)
"Elucidating the mechanism of surface melting of ice crystals"

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

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

Yutaka Shikano (Keio University, Graduate School of Science and Technology)
"Establishment of quantum simulation theory based on discrete-time quantum walk"

Yuya Seki (The National Institute of Advanced Industrial Science and Technology)
"Acceleration of quantum annealing based on non-stoquastic operator"

Daiki Nishiguchi (University of Tokyo, Graduate School of Science)
"Experimental studies on emergent orders and universal laws in collective motion of active matter systems"

Nobuyuki Yoshioka (University of Tokyo, Graduate School of Science)
"Theoretical study on the classification and description of physical states by means of neural networks"

Division 12 (Soft Matter Physics・Chemical Physics・Biophysics):

Tatsushi Ikeda (Department of Chemistry, Princeton University)
"Development of theories for nonadiabatic transition dynamics in condensed phase molecular systems and their applications to molecular spectroscopy"

Toru Kondo (Department of Chemistry, Faculty of Science and Graduate School of Science, Tohoku University)
"Relationship between protein dynamics and function revealed by quantitative fluctuation analysis using single-protein spectroscopy"

Kyohei Takae (Institute of Industrial Science, University of Tokyo)
"Role of electrostatic interactions in phase ordering of soft matter"

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