Young Scientist Award of the Physical Society of Japan, 2022

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 2022. Here is the list of winners and their research topics.

Theoretical Particle Physics:

Masamichi Miyaji (University of California, Berkely)
"Proposal of the surface/state correspondence"
Yoshiki Sato (National Center for Theoretical Science, Physics Division)
"Studies on defect C-theorem"
Ryo Nagai (Osaka University)
"Generalized Higgs effective field theory and perturbative unitarity"

Experimental Particle Physics:

Yohei Noguchi (Department of Physics, Graduate School of Science, Kyoto University)
"Measurement of Higgs boson properties using the decay channel to b-quarks following associated production with a vector boson in pp collisions at $\sqrt{s} = 13$ TeV"
Ayami Hiramoto (Okayama University)
"Measurement of Neutrino Interactions on Water using Nuclear Emulsion Detectors"
Tomohiro Yamazaki (University of California, Berkeley)"Search for Supersymmetric Partners of the Top Quark with Leptonic Signatures"

Theoretical Nuclear Physics:

Tokuro Fukui (RIKEN Nishina Center)
"Development of first-principles shell-model calculations via proper treatment of three-body force"
Yuki Fujimoto (Department of Physics, Graduate School of Science, The University of Tokyo)
"Mapping neutron star data to the equation of state using the deep neural network"
Koichi Murase (Yukawa Institute for Theoretical Physics, Kyoto University)
"Causal hydrodynamic fluctuations in non-static and inhomogeneous backgrounds"

Experimental Nuclear Physics:

TANAKA, Junki (Riken Nishina Center)
"Formation of α clusters in dilute neutron-rich matter"
HAYAKAWA, Shuhei (Tohoku University)
"Observation of Coulomb-assisted nuclear bound state of Ξ^- - ^{14}N system"
YAMAGA, Takumi (RIKEN)
"Observation of a $\bar{K}$NN bound state in the ^{3}He(K^-, Λp)n reaction"

Cosmic Ray and Astrophysics:

Koichi Hagino (Department of Physics, Faculty of Science and Engineering, Tokyo University of Science)
"Study on ultrasoft outflows from active galactic nuclei and associated absorption structure in their X-ray spectra"
Naoki Aritomi (Gravitational Wave Project Office, National Astronomical Observatory of Japan)
"Frequency-Dependent Squeezed Vacuum Source with Filter Cavity Control using Coherent Control Sidebands for Gravitational-Wave Detectors"
Tomohito Fujita (Waseda Institute for Advanced Study, Waseda University)

"Cosmological roles of gauge fields"

Beam Physics:

Kai Huang (National Institute for Quantum and Radialogical Science and Technology)
"Advanced beam diagnostics with electro-optic effect and its application to laser plasma acceleration"

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

Kazuya Fujimoto (Institute for Advanced Research, Nagoya University)
"Researches on universal scaling in nonequilibrium fluctuations of cold atoms"

Division 2 (Plasma):

Yohei Kawazura (Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)
"Ion versus electron heating in astrophysical plasma turbulence"
Keisuke Fujii (Department of Mechanical Engineering and Science, Kyoto University)
"Statistical modeling of emission spectra from many-electron atoms and heavy nuclei"

Division 3 (Magnetism):

Mitsuru Akaki (Molecular Photoscience Research Center, Kobe University)
"Study of magnetoelectric effect in pulsed high magnetic fields"
Shintaro Takayoshi (Department of Physics, Konan University)
"Theory on Ultrafast Spintronics Driven by Laser Fields"
Yuta Yamane (Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)
"Theoretical study on electric response of noncollinear antiferromagnets"

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

Kariyado Toshikaze (International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science)
"Theoretical research on exploring and analyzing novel Dirac systems"
Kenta Takeda (Center for Emergent Matter Science, RIKEN)
"Research on creating silicon quanutm bits and their multiplication"
Tsuneya Yoshida (Department of Physics, University of Tsukuba)
"Pioneering research on strongly correlated topological phenomena induced by non-Hermiticity"

Division 5 (Optical Properties of Condensed Matter):

Natsuki Kanda (LASOR, Institute for Solid State Physics, The University of Tokyo)
"Terahertz response and optical control of metamaterials, antiferromagnets, and Dirac semimetals"
Takeshi Suzuki (LASOR, Institute for Solid State Physics, The University of Tokyo)
"Ultrafast spectroscopy on exciton physics"

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

Manabu Tsujimoto (National Institute of Advanced Industrial Science and Technology (AIST))
"Terahertz Radiation from the Intrinsic Josephson Junctions of Single Crystalline High Temperature Superconductors"
Nayuta Takemori (Research Institute of Interdisciplinary Science, Okayama University)
"Theoretical Studies on Electron Correlation and Superconducting States Peculiar to Quasiperiodic Systems"

Division 7 (Molecular Solids):

Tetsuya Furukawa (Institute for Materials Research, Tohoku University)
"Quantum criticality and spin liquid states in the vicinity of Mott transition in quasi-two-dimensional

organic conductors"

Division 8 (Strongly Correlated Electron Systems):

Kosuke Karube (RIKEN Center for Emergent Matter Science)
"Study of stability of magnetic skyrmions and exploration of new materials"
Takashi Kurumaji (Department of Advanced Materials Science, the University of Tokyo)
"Discovery of new skyrmion-hosting materials and the effect of centrosymmetry of lattices"
Yasuyuki Shimura (Department of Quantum Matter, Graduate School of Advanced Science and Engineering、Hiroshima University)
"Correlations of hidden degrees of freedom in 4f electron systems by magnetic field responses under very low temperature"
Masamichi Nakajima (Department of Physics, Osaka University)
"Study on electronic structures in iron-based superconductors by optical spectroscopy"

Division 9 (Surfaces & Interfaces, Crystal Growth):

Jo Onoda (Department of Physics, University of Alberta)
"Atomic-scale chemical identification and structural analysis by atomic force microscopy"
Koichiro Yamakawa (Advanced Science Research Center, Sector of Nuclear Science Research, Japan Atomic Energy Agency)
"Study of vibrational and nuclear-spin dynamics of molecules with use of in situ terahertz and infrared spectroscopy"

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

Daisuke Morikawa (Institute of Multidisciplinary Research for Advanced Materials, Tohoku University)
"Local structure analysis applied for interface and in-situ experiment using convergent-beam electron diffraction"

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

Tatsuhiko Shirai (Department of Communications and Computer Engineering, School of Fundamental Science and Engineering, Waseda University)
"Theoretical study on a steady state of periodically driven open quantum systems"
Hidemaro Suwa (Department of Physics, Graduate School of Science, The University of Tokyo)
"Development of efficient Monte Carlo methods for many-body problems"
Satoshi Takada (Department of Mechanical Systems Engineering, Tokyo University of Agriculture and Technology)
"Theoretical study on rheological effects of particle softness for granular gas and suspension"
Hiroyoshi Nakano (Faculty of Science and Technology, Keio University)
"Continuous symmetry breaking and long-range order in nonequilibrium systems under steady shear flow"

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

Shunto Arai (University of Tokyo)
"Control of crystallization in softmatter and its application to electronics"
Yuji Sasaki (Hokkaido University)
"Control of topological defects in liquid crystals using self-organization"
Shunsuke Shimobayashi (Princeton University)
"Structure and dynamics in intracellular molecular assembly induced by liquid-liquid phase separation"

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