

The 2020 AAPPS-APCTP CN Yang Award

Fu-Jen Kao

Chair of the CN Yang Award Committee

This year, three outstanding young scholars were selected out of 23 nominees (Table 1) to receive the prestigious AAPPS-APCTP CN Yang Award. It was challenging to select the representative works, considering the diversity of their fields and the very high qualifications of the nominees.

The CN Yang Award was established to honor and encourage young researchers with prominent research achievements and to promote the next generation's leaders in physics in the Asia Pacific region. In the past, this award was presented during the Asia Pacific Physics Conference, which is held approximately every three years. Notably, starting in 2019, the Association of Asia Pacific Physical Societies (AAPPS) and the Asia Pacific Center for Theoretical Physics (APCTP) jointly established the AAPPS-APCTP Chen-Ning Yang Award and it became an annual award. The AAPPS-APCTP CN Yang Award Committee was formed in 2019 under the directive of AAPPS's council to give recommendations regarding the most promising candidates. The award committee consists of members from AAPPS's council, divisions, and renowned scholars recommended by APCTP.

As detailed in the link, http://www.aapps.org/myboard/list_blog.php?Board=chen_ning_yang, a candidate who receiving his or her PhD no more than 10 years ago can be nominated by a member society or by an individual who was fully registered for the most recent Asia Pacific Physics Conference. The originality of the candidates' works, their established impact, and their future prospects are very important considerations when selecting the recipients of the award. The list of nominees in Table 1 interestingly reflects the trends and demography of the physics community in the Asia Pacific region.

Citations and a short description of the research areas of the recipients of the 2020 AAPPS-APCTP CN Yang Award are listed below.

Jinsong ZHANG
(Physics Department, Tsinghua University)



“For his outstanding contributions to topological quantum matter research, in realizing the quantum anomalous Hall effect and axion insulator phase in magnetic topological insulators”

Dr. Jinsong Zhang's research has focused on the low-temperature transport study of topological quantum matter and two-dimensional (2D) layered materials under electric and magnetic fields, including topological insulators (TI), the quantum anomalous Hall effect (QAHE), and quantum phase transitions. His techniques and works include (1) band structure engineering in topological insulators, (2) the first experimental realization of QAHE, (3) topology-driven magnetic quantum phase transition, and (4) the axion insulator and Chern insulator phases in intrinsic 2D magnetic TI MnBi_2Te_4 , which offers a new strategy to realize topological magnetoelectric effects and axion electrodynamics in condensed matter systems.

Dr. Zhang has been highly decorated as a young scientist, and was recognized with Qiu Shi Outstanding Young Scholar Award (2020) and the Chorafas Foundation Award of Switzerland (2014). He is currently an associate professor at the Department of Physics, Tsinghua University, China.

Zhiqing LIU (Shandong University)

“For his outstanding contributions to experimental hadron physics that goes beyond the quark model; in particular, for the discovery of the four-quark particle $Z_c(3900)$ ”

Dr. Liu is an experimentalist working on particle physics and nuclear physics, with the Beijing Spectrometer III (BES III), Belle/Belle II, and anti-Proton ANnihilation at Darmstadt (PANDA) experiments. He participated in the discovery of a charged charmonium-like state $Z_c(3900)$ at the BES III experiment in 2013, and made the same observation at the Belle experiment. Note that the $Z_c(3900)$ particle is regarded as the first convincing candidate for a tetraquark particle by the hadron physics community, a highly acclaimed event reported in *Physics* and selected by the American Physics Society as the number one standout story of the “Top Eleven Highlighted Events” in physics in 2013.

Dr. Liu was also recognized with a prestigious Marie Curie International Incoming Fellowship (IIF) for post-doctoral research from 2014 to 2016. He is currently a professor at the Institute of Frontier and Interdisciplinary Science, Shandong University, China.

Nobuyuki KOBAYASHI (RCNP, Osaka University)

“For his outstanding achievements in exotic nuclear physics in the discovery of neutron halo structures in ^{37}Mg , $^{31,29}\text{Ne}$, and ^{22}C and in the spectroscopic study of ^{43}S and ^{208}Pb with novel reaction and gamma-ray measurements”

Dr. Kobayashi has led the research field of halo formation in unstable nuclei using radioisotope (RI) beams at RIKEN Radioactive Isotope Beam Factory (RIBF). His main achievements include spectroscopic studies on novel halo nuclei ^{37}Mg , $^{31,29}\text{Ne}$, and ^{22}C via inclusive breakup reactions. In addition, he worked on a lifetime measurement of the excited states of the unstable nucleus ^{43}S at the National Superconducting Cyclotron Laboratory (NSCL), Michigan State University (MSU) and a study of pygmy dipole resonances on ^{208}Pb via $(p,p'\gamma)$ reactions at the Research Center for Nuclear Physics (RCNP), Osaka University.

Dr. Kobayashi was also recognized with the Young Scientist Award of the Physical Society of Japan (2020) and the RIBF Users Group executive committee (UEC) Thesis Award (2013). He is affiliated with the Research Center for Nuclear Physics (RCNP), Osaka University, Japan.

Table I: Statistics regarding the nominees for the 2020 CN Yang Award.

No.	Nationality	no. of candidates
1	Japan	7
2	China/Beijing	6
3	Korea	4
4	Hong Kong	2
5	China/Taipei	2
6	USA	1
7	Australia	1
Total		23

No.	Session	no. of candidates
1	C. Condensed Matter, Semiconductor & Materials Physics	9
2	O. Quantum Information	3
3	B. Atomic, Molecular & Optical Physics	2
4	D. Particle Physics	2
5	F. Optics & Laser	2
6	M. Nuclear Physics	2
7	E. Strongly Correlated Electron Systems	1
8	I. Complex Systems, Mathematical Physics & Computational Physics	1
9	A. Astrophysics, Cosmology, and Gravitation	1
Total		23