

**Yugang Ma and Qing-Feng Sun won the 2015 Achievement in Asia Award (Robert T. Poe Prize)**

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Professor Yugang Ma (SINAP; Shanghai Institute of Applied Physics) and Prof. Qing-Feng Sun (Department of Physics, Peking University) are the co-winners of the 2015 Achievement in Asia Award (Robert T. Poe Prize) given by the International Organization of Chinese Physicists and Astronomers (OCPA).

The OCPA AAA (Robert T. Poe Prize) is awarded annually to a Chinese physicist/astronomer or a team working in Asia in recognition of their outstanding achievements in physics and astronomy. The Award carries a total cash prize of US\$2,000 and a certificate citing the awardee's accomplishments in research.

Professor Qing-Feng Sun received his B.Sc. degree in 1995 and Ph.D. degree in 2000 both from the Physics Department of Peking University. From 2000 to 2003, he worked as a postdoctoral fellow at Department of Physics, McGill University, Canada. In 2003, he was appointed Professor at the Institute of Physics, Chinese Academy of Sciences. Since Professor Sun joined School of Physics at Peking University in 2013, and since 2013, he has been the Cheung Kong Professor.

Professor Sun's research mainly focuses on the fields of quantum transport and spintronics. He has been working extensively the quantum transport in the following systems and effects: quantum dot, graphene, topological insulator, Kondo effect, the organic molecules, etc. He has obtained several outstanding achievements. He and his collaborators derived some important formula and Hamiltonian, and predicted a number of interesting effects or phenomena. They discovered that the spin-orbit coupling gives rise to an extra spin-dependent phase factor in the hopping term of the Hamiltonian, and derived a model Hamiltonian of DNA and helical protein molecules, which includes the helical structure and the spin-orbit coupling. A quantized perfect Andreev reflection in two-dimension topological insulator-superconductor hybrid systems was predicted. Moreover, a new quantum state, the spin superconductor which is the counterpart of the superconductor, was proposed. They showed that the spin superconductor has zero spin-resistance, the electric Meissner effect (against a spatial varying electric field), and the spin-current Josephson effect. His accomplishments have also led to some prestigious awards in China, including National Excellent Doctoral Dissertation Award of China (2002), NSFC Distinguished Young Scholars (2005), and Outstanding Science and Technology Achievement Prize of Chinese Academy of Sciences (2011).

Prof. Sun has broad research interests. In addition to the above, he has made significant contributions to various subfields of condensed matter physics, such as quantum transport, quantum dot systems, graphene, Kondo effect, etc. Collaborating with colleagues, his contributions include: 1) the proposal of a method to experimentally detect directly the Kondo resonance peaks in the local density of states of a quantum dot. Subsequently, Kouwenhoven's group (Delft) applied their proposed method to successfully detect the Kondo resonance peaks [see PRL 89, 156801(2002)]; 2) the derivation of a general formula for heat generation by electric current in mesoscopic devices, which have been extensively applied by many researchers; 3) the discovery that the conductance is small in a clean graphene p-n junction while under the magnetic field. However, this conductance is strongly enhanced by the disorder and some plateaus emerge at moderate range of disorder, in excellent agreement with the

experimental; and 4) in two-dimensional topological insulator, the discovery that the quantum plateaus of the resistance are robust against the normal dephasing, but the spin dephasing can cause backscattering and destroy the quantum plateaus. Subsequent experimental work, by Stuart S.P. Parkin *et al.*, showed that this is a dominant edge scattering process [see PRL 112, 026602(2014)].

The winners of the 2015 AAA (Robert T. Poe Prize) were selected by following panel of distinguished physicists (in alphabetical order):

Professor Che-Ting Chan	Hong Kong University of Science and Technology
Professor Meng Jie	Peking University
Professor Ting-Kuo Lee	Institute of Physics, Academia Sinica, Taiwan
Professor Zheng-Tian Lu	Argonne National Laboratory
Professor Jian-Wei Qiu	Iowa State University and Brookhaven National Laboratory
Professor Wu-Tsung Weng	Brookhaven National Laboratory

OCPA's AAA activity is a continuing program and represents a long tradition of OCPA to recognize outstanding achievements of the members of the Chinese physics and astronomy community. Previous AAA winners include:

OU-YANG, Zhong-Can	(1993, Institute of Theoretical Physics, China)
ZHU, Qing-Shi	(1994, University of Science and Technology, China)
I, Lin	(1995, National Central University, Taiwan)
WEI, Ching-Ming	(1996, Academia Sinica, Taiwan)
CHING, Emily Shuk-Chi	(1999, Chinese University of Hong Kong)
WANG, Jian	(1999, University of Hong Kong)
CHAN, Che-Ting	(2000, Hong Kong University of Science & Technology)
HOU, Jian-Guo	(2001, University of Science & Technology, China)
YANG, Xue-Ming	(2001, Academia Sinica, Taiwan)
HOU, Wei-Shu	(2002, National Taiwan University, Taiwan)
WANG, Enge	(2002, Institute of Physics, CAS, China)
ZHANG, Jie	(2004, Institute of Physics, CAS, China)
LI, Baowen	(2005, National University of Singapore)
WANG, Ning	(2006, Hong Kong University of Science & Technology)
LI, Hsiang-nan	(2007, Academia Sinica, Taiwan)
GAO, Hongjun	(2008, Institute of Physics, CAS, China)
East Team	(2009, Institute of Plasma Physics, CAS, China)
MENG, Jie	(2009, Beijing University, China)
FENG, Dong-Lai	(2010, Fudan University, China)
WEN, Hai-Hu	(2010, Institute of Physics, CAS, China)
HO, Pei-Ming	(2011, National Taiwan University, Taiwan)
DAI, Xi	(2012, Institute of Physics, CAS, China)
FANG, Zhong	(2012, Institute of Physics, CAS, China)
JIA, Jin-Feng	(2013, Shanghai Jiao Tong University, China)

ZHOU, Xing-Jiang  
HAN, Yilong  
YAO, Wang

(2013, Institute of Physics, CAS, China)  
(2014; Hong Kong University of Science and Technology)  
(2014; University of Hong Kong)