

Kang-Kuen Ni and Shirley Ho won the 2014 OCPA Outstanding Young Researcher Award (Macronix Prize)

Professor Kang-Kuen Ni (Department of Chemistry and Chemical Biology, Harvard University) and Professor Shirley Ho (Department of Physics, Carnegie Mellon University) are the winners of the 2014 Outstanding Young Researcher Award (Macronix Prize) given by the International Organization of Chinese Physicists and Astronomers (OCPA).

The former Outstanding Young Researcher Award (OYRA) has been renamed to the present OYRA (Macronix Prize) in 2012 in recognition of a generous donation from the Macronix Education Foundation. The OYRA (Macronix Prize) is given each year to one to two young, ethnic Chinese physicist/astronomer outside of Asia, in recognition of his/her (their) outstanding achievements in physics/astronomy. The Award carries a cash prize of US \$2,000 each and a certificate citing the awardee's accomplishments in research.

Professor Kang-Kuen Ni received her B.Sc. degree in Physics from the University of California, Santa Barbara in 2003, and her Ph.D. degree in physics from University of Colorado, Boulder in 2009 under the supervision of Professor Deborah Jin. From 2009 to 2011, she was a postdoctoral fellow in the Center for Physics of Information at the California Institute of Technology under Professor Jeff Kimble. From 2011 to 2013, she received a National Research Council postdoctoral fellowship and worked at JILA under Professor Eric Cornell. Since July 2013, she has been an assistant professor in the Department of Chemistry and Chemical Biology at Harvard University and the Harvard-MIT Center for Ultracold Atoms.

During the course of her graduate work and postdoctoral studies, Professor Ni established herself as a pioneer and leader in the area of ultra-cold molecular chemistry. She devised experimental methods to synthesize and study molecules at extraordinarily low temperatures (~ 100 degrees nanoKelvin). Every quantum state of the molecules in her experiments, including the translation, vibration, rotation, electron spin, and nuclear spin, was precisely determined, which provided unprecedented opportunities for elucidating fundamental details of reaction chemistry. Since she joined the faculty of Harvard, Professor Ni aims at addressing two broad types of questions: First, how does chemistry change when the deBroglie wavelength of the reactants exceeds the size of the molecules and even exceeds the intermolecular spacing? Second, what is the phase behavior of ultra-cold polar diatomic molecules? These situations moving from ultra-cold atoms to molecules have been theoretically predicted to provide a host of new physical phenomena and new quantum phases as the result of long-range interactions of molecular dipole moments, and Professor Ni is spearheading the experimental effort.

Professor Shirley Ho received her B.A. degrees in both Physics and Computer Science from University of California, Berkeley in 2004 and her Ph.D. degree in Astrophysical Sciences from Princeton University in 2008. From 2008 to 2011, she held the position of Chamberlain and Seaborg Fellow in the Physics Division of Lawrence Berkeley National

Laboratory. Since September 2011, she has been an assistant professor at the Department of Physics in Carnegie Mellon University.

Much of the research accomplishment of Professor Ho has been on using SDSS-III data to measure cosmic distance scales and the growth of structure in the universe in order to get at the expansion history of the universe. She has been a leader in extracting signals of the Baryon Acoustic Oscillations, which are the tiny ripples in the density of galaxies that are an imprint left over from the quantum fluctuations in density soon after the Big Bang. She utilized these signals as a standard ruler to measure the distance scale of the universe in various epochs, and was able to achieve the most accurate measurements of cosmic distances yet with an accuracy of 1%. Her current research focuses on developing the understanding of dark energy via large-scale spectroscopy, investigating the initial conditions and contents of the universe large-scale photometry, and applying machine learning to studying non-linear cosmological problems.

The winners of the OCPA 2014 OYRA Award (Macronix Prize) were selected by following panel of distinguished physicists (in alphabetical order):

Professor Moses Chan	Pennsylvania State University
Professor Xiangdong Ji	University of Maryland, College Park
Professor Jen-Chieh Peng	University of Illinois, Urbana Champaign
Professor Lu Jeu Sham	University of California, San Diego
Professor Yuen-Ron Shen	University of California, Berkeley

The OCPA award (Macronix Prize) activity is a continuing program and represents a long tradition of OCPA to recognize outstanding achievements of the members of the ethnic Chinese physics and astronomy community. Previous OYRA winners include:

ZHANG, Shou-Cheng	(1992, Stanford University)
HWA, Terence Tai-Li	(1993, University of California, San Diego)
SHEN, Zhi-Xun	(1993, Stanford University)
WEN, Xiao-Gang	(1994, Massachusetts Institute of Technology)
XIAO, Gang	(1994, Brown University)
SUEN, Wai Mo	(1995, Washington University)
JIANG, Hong Wen	(1996, University of California, Los Angeles)
DU, Rui Rui	(1997, University of Utah)
QIU, Zi Qiang	(1997, University of California, Berkeley)
YEH, Nai-Chang	(1998, California Institute of Technology)
HU, Wayne	(1999, University of Chicago)
MA, Chung-Pei	(2000, University of Pennsylvania)
YAO, Zhen	(2001, University of Texas)
DAI, Pengcheng	(2002, University of Tennessee)
LO, Hoi-Kwong	(2002, University of Toronto)
YANG, Kun	(2002, Florida State University)
CAO, Hui	(2003, Northwestern University)
FENG, Jonathan	(2003, University of California at Irvine)

DUAN, Luming	(2005, University of Michigan)
CHIN, Cheng	(2006, University of Chicago)
LIU, W. Vincent	(2007, University of Pittsburgh)
CHAN, Ho Bun	(2008, University of Florida)
WANG, Feng	(2008, University of California, Berkeley)
WU, Congjun	(2008, University of California, San Diego)
RUAN, Chong-Yu	(2009, Michigan State University)
ZHONG, Dongping	(2009, Ohio State University)
QI, Xiaoliang	(2010, Stanford University)
XU, Cenke	(2011, University of California, Santa Barbara)
GAO, Xuan	(2012, Case Western Reserve University)
CHEN, Yulin	(2012, Oxford University)
FU, Liang	(2013, Massachusetts Institute of Technology)