

陳丕燊 (Pisin Chen) 博士簡介

Professor, Department of Physics and Graduate Institute of Astrophysics, National Taiwan University
C.C. Leung University Chair Professor of Cosmology, National Taiwan University
Director, Leung Center for Cosmology and Particle Astrophysics, NTU



Education:

- B. S. in Physics, National Taiwan University
- Ph.D. in Physics, UCLA (in Theoretical Particle Physics under J. J. Sakurai)

Experience:

- Post-doctoral Research Associate, UCLA (1984-1986)
- Physicist, Stanford Linear Accelerator Center, Stanford University (1986 to 2007)
- Leader of Particle Astrophysics and Cosmology Group at SLAC (2000 to 2007)
- Professor of Physics and Astrophysics, National Taiwan University (since 2007)
- Director of Leung Center for Cosmology and Particle Astrophysics (since 2007)
- Spokesperson for SLAC-E150 experiment on “Plasma Focusing of High Energy Charged Particle Beams” (1996-2000)
- Spokesperson for SLAC-E165 experiment on “Fluorescence in Air from Showers (FLASH)” (2002 to present)
- Co-Spokesperson, the ARA (Askaryan Radio Array) Collaboration (since 2009)
- Executive Committee, Division of Physics of Beams, American Physical Society (1995-1997)
- Member of the International Committee on Future Accelerators (ICFA) Beam Dynamics Panel (1996-2005)
- Member of the Executive Council (1997-2002) and Coordinator of Inter-disciplinary Sciences (2002 to present), Overseas Chinese Physics Association
- Founder and Chairman of the international workshop series on Quantum Aspects of Beam

Physics (1998 to present)

- Organizer and chairman of numerous international conferences
- International Coordinating Committee, Marcel Grossmann Conference series (since 2002)
- Member of Scientific Advisory Committee, European Union “Extreme Light Infrastructure (ELI)” Ultra-High Intensity Laser Project (since 2008)
- Founding Member, the World Education Council, Geneva, Switzerland (since 2009)

Accomplishments:

- Proposed (with John Dawson) theory of plasma wakefield acceleration (1984).
- Introduction of the theory of plasma focusing of high energy electron and positron beams, which led to the concept of a plasma lens (1986).
- Theoretical discovery of the beamstrahlung coherent pair creation effect in linear colliders (1988), which is essential to particle physics analysis in linear colliders.
- Spokesperson of SLAC E-150 Plasma Lens Experiment that proved the predictions of the plasma focusing effect on high energy electron and positron beams (2000). Selected by American Physical Society as one of Top 50 Physics News in 2000.
- Spokesperson of SLAC E-165 Fluorescence from Air in Shower (FLASH) Experiment that confirmed the HiRes energy calibration (2005).
- Essential contribution (2001) that resulted in the establishment of the “Chen Particle Astrophysics and Cosmology Institute” at Stanford University, which was later (2003) renamed Kavli Institute for Particle Astrophysics and Cosmology (KIPAC).
- Contribution that resulted in C.C. Leung’s donation to found the NTU Leung Center for Cosmology and Particle Astrophysics (LeCosPA), 2007.

Honors:

- J. J. Sakurai Memorial Fellowship in Theoretical Particle Physics, 1983
- Fellow of American Physical Society, 1994
- 4th Prize in Essay Competition on Gravitation, Gravity Research Foundation, 1995
- 3rd Prize in Essay Competition in Gravitation, Gravity Research Foundation, 2001
- Ministry of Education Outstanding Scholar Fellowship (the Carry-On Position), Taiwan, R.O.C., 2006
- Taiwan Outstanding Scholar Foundation “Y.T. Lee Chair Professor”, 2007
- NTU Outstanding Research Award, 2007
- C.C. Leung University Chair Professor of Cosmology, NTU, since 2008

Current Research Interests:

- Theoretical cosmology, including the nature of dark matter and dark energy, inflation and cosmic evolution in early universe
- Theoretical particle astrophysics, such as ultra high energy cosmic rays (UHECR) and cosmic neutrinos
- Laboratory investigation of critical issues in high energy astrophysics and cosmology using high intensity particle and photon beams
- Experimental investigation of ultra high energy cosmic neutrinos