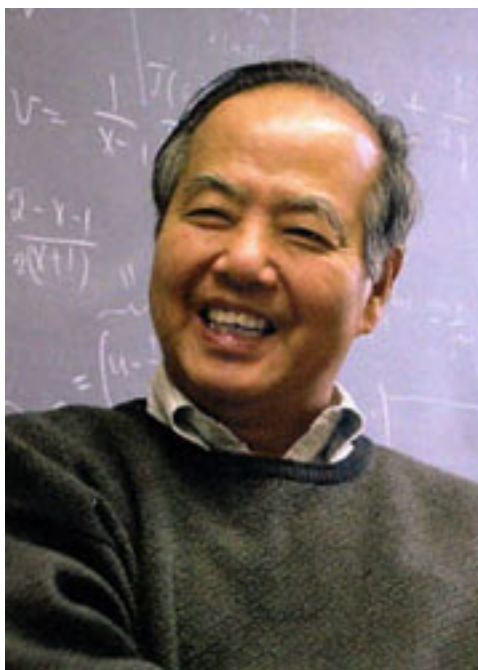# Prof. Tsung-Dao Lee
Professor

ost important awards, prizes and academies

Awards: Nobel Prize in Physics (1957); Albert Einstein Award in Science; Galileo Galilei Medal; Order of Merit, Grande Ufficiale, Republic of Italy; Science for Peace Prize, China National-International Cooperation Award; Naming of Small Planet 3443 as the T.-D. Lee Planet; New York City Science Award; New York Academy of Sciences Award; The Order of the Rising Sun, Gold and Silver Star, Japan. *Academies*: American Physical Society; Academia Sinica; American Academy of Arts and Sciences; National Academy of Sciences; American Philosophical Society, Accademia Nazionale dei Lincei; Chinese Academy of Sciences; Third World Academy of Sciences; Pontifical Academy of Sciences.

Summary of scientific research

Lee began his research under Enrico Fermi at the University of Chicago, with his first paper on the universality of the Fermi Interaction and his thesis on white dwarfs stars. He then worked with collaborators on phase transitions in statistical mechanics and polarons in condensed matter physics. After joining Columbia University in 1953, Lee worked mainly in particle physics and field theory. He created the Lee Model and the fields of high energy neutrino physics and the relativistic heavy ion physics. More recently, his interests have turned into high Tc superconductivity, lattice physics, difference equations and new ways to solve the Schrödinger Equation.

Main publications

Books: T.D. Lee, *Particle Physics and Introduction to Field Theory*, Harwood Academic Publishers, 1981; T.D. Lee, *Selected Papers*, Vols 1-3, Ed. G. Feinberg, Birkhauser Boston Inc., 1986; *Thirty Years Since Parity Nonconservation, A Symposium for T.D. Lee*, Birkhauser Boston Inc., 1988; T.D. Lee, *Symmetries, Asymmetries, and the World of Particles*, University of Washington Press, 1988; T.D. Lee, *Selected Papers*, 1985-96, eds. H.C. Ren and Y. Pang, Gordon and Breach, 1998; *Science and Art*, eds. T.D. Lee and Liu Huaizu, Shanghai Science and Technology Publisher, 2000; T.D. Lee, *The Challenge from Physics*, China Economics Publisher, 2002; T.D. Lee, *Response to the Dispute of Discovery of Parity Violation*, eds. Ji Cheng, Liu Huaizu and Teng Li (in Chinese), Gansu Science and Technology Publisher, 2004, Cosmos Books Ltd. Hong Kong, 2004. *Articles*: Lee, T.D., *et al.*, Interaction of Mesons with Nucleons and Light Particles, *Physical Review*, 75, p. 905 (1949); Lee, T.D., Hydrogen Content and Energy Productive Mechanism of White Dwarfs, *Astrophysical Journal*, 111, p. 625 (1951); Lee, T.D. and Yang, C.N., Statistical Theory of Equations of State and Phase Transitions. II. Lattice Gas and Ising Model, *Physical Review*, 87, p. 404 (1952); Lee, T.D. and Pines, D., Motion of Slow Electrons in Polar Crystals, *Physical Review*, 88, p. 960 (1952); Lee, T.D., Some Special Examples in Renormalizable Field Theory, *Physical Review*, 95, p. 1329 (1954); Lee, T.D. and Yang, C.N., Question of Parity Conservation in Weak Interaction, *Physical Review*, 104, p. 254 (1956); Lee, T.D., Abnormal Nuclear States and Vacuum Excitations, *Review of Modern Physics*, 47, p. 267 (1975); Friedberg, R., Lee, T.D. and Sirlin, A., Class of Scalar-field Soliton Solutions in Three Space Dimensions, *Physical Review*, D1 3, p. 2739 (1976); Christ, N.H., Friedberg, R. and Lee, T.D., Random Lattice Field Theory: General Formulation, *Nuclear Physics*, B 202, p. 89 (1982); Lee, T.D., Can Time Be a Discrete Dynamical Variable?, *Physics Letters*, 12213, p. 217 (1983); Lee, T.D., Soliton Stars and the Critical Masses of Black Holes, *Physical Review*, D, p. 3637 (1987); Lee, T.D., Bosonization of Lattice Fermions and High Tc Superconductivity, *Physica*, 186 (1994); Friedberg, R., Lee, T.D., Zhao, W.Q., and Cimenser, A., A Convergent Iterative Solution of the Quantum Double-well Potential, *Annal Physics*, 294, p. 67 (2001); Lee, T.D., A New Approach to Solve the Low-lying States of the Schroedinger Equation, *Journal of Statistical Physics* 121, 1015 (2005); Lee, T.D., *et al.*, Convergent Iterative Solutions for a Sombrero-Shaped Potential in Any Space Dimension and Arbitrary Angular Momentum, *Ann. Phys.* 321, 1981 (2006); Lee, T.D., Comments on the Superconductivity Solution of an Ideal Charged Boson System, *Journal of Superconductivity and Novel Magnetism* 19, 277 (2006); Lee, T.D., A Possible Relation between the Neutrino Mass Matrix and the Neutrino Mapping Matrix (with R. Friedberg), HEP & NP30 591, (2006); Lee, T.D., Hidden Symmetry of the CKM and Neutrino Mapping Matrices (with R. Friedberg), *Ann. Phys.* (2007); Lee, T.D., Jarlskog Invariant of the Neutrino Mapping Matrix (with R. Friedberg), *Ann. Phys.* (2007); Lee, T.D., A Bright Future for Particle Physics, *CERN Courier*, 31867, Nov (2007).