



Prof. Chen Ning Yang

Professor, Nobel laureate in Physics, 1957



Most important awards, prizes and academies

Awards: Nobel Prize in Physics (1957); US National Medal of Science (1986); King Faisal International Prize (2001). *Academies:* US National Academy of Science; Russian Academy of Sciences; National Academy of the PRC; Academia Sinica; Royal Society of London.

Summary of scientific research

Yang's work in theoretical physics extends over several areas. In elementary particle theory he introduced in the early 1950s effective use of the concept of symmetry in analyzing phenomena related to the new particles. This line of research included the work he did in 1957 with T.D. Lee on parity non-conservation which won them the Nobel Prize. A few years before that in 1954 working with R.L. Mills, Yang greatly extended the use of symmetry by proposing a non-Abelian gauge theory. This theory, some 20 years later, was recognized as being of fundamental importance and is the foundation on which the present theory of elementary particles is built. Yang is also active in statistical mechanics in which he clarified with T.D. Lee the theory of phase transitions. His later work in the 1960s in this field led to the famous Yang-Baxter equation.

Main publications

Yang, C.N., Field Theory. Most Important Paper being the one with R.L. Mills, *Phys. Rev.* 96, p. 191 (1954), (establishing the Yang-Mills theory); Yang, C.N., High Energy Phenomenology. Most Important Paper being the one with T.D. Lee, *Phys. Rev.* 104, p. 254 (1956), (proposing non-conservation of parity in weak interactions); Yang, C.N., Statistical Mechanics. Most Important Paper being *Phys. Rev. Letters* 19, p. 1312 (1967), (giving the Yang-Baxter equation); Yang, C.N., Condensed Matter Theory. Most important paper being *Rev. Mods. Physics* 34, p. 694 (1962), (on the concept of ODLRO). Over 250 papers in scientific journals; Selected Papers with Commentary, published by Freeman Co. in 1983.