

# Nobel Prize in Physics 1949

Nobel Foundation



Theoretical Physics

## Awarded for

his prediction of the existence of mesons on the basis of theoretical work on nuclear forces

## Hideki Yukawa [1907 - 1981]

Doctor of Science

Professor Emeritus, Kyoto University and Osaka University

## Achievements

Professor Yukawa contributed to the theory of elementary particle physics. From 1934 to 1935, he assumed that the fundamental interactions are carried by particles, and predicted the existence of a certain particle, which was later called "meson," for the strong interaction between protons and neutrons. He also predicted that the mass of a meson is 200 times that of the electron. Moreover he originally attempted to reveal the mechanism of the weak interaction, though this attempt was failed. In 1937, a new particle with the predicted meson mass was discovered. Professor Powell experimentally discovered a meson mediating the nuclear force in 1947, which verified the validity of Yukawa's theory.

## Profile

During his research life, he not only wrote a lot of scientific papers, but also fostered many excellent students. The news of his recipient of Nobel Prize encouraged the Japanese society of those days which had not been fully recovered from the World War II. In his later years, he became a member of Pugwash Conferences on Science and World Affairs, and made efforts to realize the world peace and the abolition of nuclear weapons.

### Timeline

1929	Graduated from Kyoto Imperial University Faculty of Science
1936	Associate Professor, Osaka Imperial University Faculty of Science
1937	Participated in the Solvay Conferences on Physics
1938	Received Doctor of Science from Osaka Imperial University
1939	Professor, Kyoto Imperial University
1948	Visiting Professor, Institute for Advanced Study, USA
1950	Professor, Columbia University
1955	Board of Japanese National Commission for UNESCO
1955	President, the Physical Society of Japan
1970	Retired from Kyoto University and entitled Professor Emeritus
2005	UNESCO made a medal of Yukawa for his memorial

### Other Awards and Prizes (selected)

1940	Imperial Prize, the Japan Academy, Japan
1943	Order of Culture, Japan (as the youngest receipt)
1963	Foreign Member, the Royal Society, UK
1964	Lomonosov Gold Medal, Russian Academy of Sciences, Russia
1967	Medal of Merit, Order of the Federal Republic of Germany
1967	Medal of the Pontifical Academy of Sciences, Italy
1977	Grand Cordon of the Order of the Rising Sun, Japan

HIDEKI YUKAWA