

THE CHINESE UNIVERSITY OF HONG KONG

THIRTY-THIRD CONGREGATION

Conferment of the Degree of Doctor of Science, *honoris causa*

A Citation

Professor Samuel Chao Chung Ting
Nobel Laureate in Physics

Fifteen years ago, a research group sought permission from the Brookhaven National Laboratory in Long Island, New York to use the famous Brookhaven accelerator for experiments in elementary particle physics. The facilities at the large particle accelerator at Brookhaven were and are much sought after and the group won the permission against a strong field of competitors. This group was headed by a young scientist, Professor Samuel Chao Chung Ting, then Professor of Physics at the Massachusetts Institute of Technology and, at the age of thirty-six, a rising star in the field of particle physics. The faith of Brookhaven National Laboratory in Professor Ting and his team of research scientists was not misplaced for, two and a half years later, on November 1, 1974, the group made history with the discovery of a new elementary particle.

Elementary particles are very small, smaller than molecules and smaller than atoms, smaller even than the nucleus of most atoms, but they hold the key to the understanding of the basic structure of the material world. The first elementary particle man discovered is of course the electron; its impact on our lives has been far-reaching and needs no elaboration.

News of Professor Ting's discovery quickly spread in the scientific world. Some scientists called it the most important advance in physics in many a year. *The Times* of London carried the news on its front page. It fell to Professor Ting as leader of the research group to name the new particle discovered, and he decided to call it the "J" particle, some say after the shape of the Chinese character 丁 (Ting) which is his surname.

This scientific discovery was crowned two years later with the award on Professor Ting of the Nobel Prize for Physics in 1976 which he shared with Professor Burton Richter who, working independently, had also made the same discovery and had called it the Ψ particle, hence the name J/ψ which Chinese physicists sometimes jokingly refer to as 丁/中.

The significance of Professor Ting's discovery is best summed up in the citation which accompanied the award of the Nobel Prize. In this, it was unequivocally stated that "This discovery has opened new vistas and given rise to great activities in all laboratories around the world where resources are available. It brings with it the promise of a deeper understanding of all matter and of several of its fundamental forces." The citation went on to say that "the physics of elementary particles after November 1974 is recognized to be different from what it was before".

The man whose discovery has made such a significant impact on the world of science was born Ting Chao Chung, son of a professor of engineering and a professor of psychology, both alumni of the University of Michigan. A native of Shandong Province where, it was said, the people were so straightforward that even highwaymen tied bells to their horses to give warning to victims of their approach, Ting Chao Chung has that same straightforward demeanor as his fellow Shandongese. When asked about what his maxim was in life and work, he replied, "Do it well. Do it early." I was not surprised, therefore, to find in Professor Ting's Nobel Prize autobiography that he had been born prematurely when his parents were visiting at Ann Arbor, Michigan. He arrived early and in very good shape. How well endowed he has been intellectually is best seen in this comment of his father, Professor Ting Kuan Hai. He said of his son, "Chao Chung has always taken a keen interest in mathematics and the sciences. My boy adapts particularly well when the competition is particularly keen. When he was little, he did well in all subjects, except singing." Mr. Chancellor, we are glad that Ting Chao Chung was not a good singer, or the world of physics might well have lost a brilliant scientist to the world of opera.

The early starter's early education was not as smooth as one might have reason to expect, for China was in the midst of war for the first twelve years of young Ting Chao Chung's life. By his own admission, he did not have a regular education until he was twelve years old, by which time he and his family had moved to Taiwan. Eight years later, at the age of twenty, he arrived at Detroit city in the United States of America with \$100 in his pocket. He said of himself, "I was somewhat frightened, did not know anyone, and communication was difficult." But old Professor Ting was right when he said his son adapted particularly well when the competition was particularly keen. In three years, Ting Chao Chung had finished two degrees, one in mathematics and the other in physics. In another year he had done his Master's Degree, and two years later, in 1962, left the University of Michigan with a doctorate.

From 1962 to his major discovery in 1974, Professor Ting lectured and researched in several of the

world's best known universities and research laboratories, including the European Organization for Nuclear Research (CERN), Columbia University, the Deutsches Elektronen - Synchrotron (DESY), the Massachusetts Institute of Technology and the afore-mentioned Brookhaven National Laboratory. In the year he won the Nobel Prize in Physics, Professor Ting also received the Ernest Orlando Lawrence award. The following year, he was honoured with the award of the Eringen Medal by the American Society of Engineering and Science.

Mr. Chancellor, Professor Ting has the reputation of being totally dedicated to his work and has the habit of approaching research problems with single-minded devotion. But, amidst his normally very heavy schedule, he has found time to make a number of trips to the People's Republic of China and to Taiwan to select Chinese scientists for advanced training through participation in the many projects currently under his charge. Indeed, he has not only found time, but also money for his researchers. Today, there are several scholarships under his name.

Mr. Chancellor, for his truly outstanding contribution as an experimental physicist, for his pioneering work in locating the fundamental building blocks of nature, for his role as an educationist and scientist, I present to you Professor Samuel Chao Chung Ting, Nobel Laureate, world authority on the charmed quarks, himself a man of charm and taste in Physics, for the award of the degree of Doctor of Science, *honoris causa*.

March 26, 1987