

Professor Samuel C C TING

Citation

Prof Samuel Ting is one of the most distinguished physicists of our time. He earned a Nobel Prize by the age of 40, is a member of the US National Academy of Sciences, an elected member of the Academia Sinica, and a foreign member of the Chinese Academy of Sciences and the Russian Academy of Sciences. Currently, he leads an international space-based project to investigate the origins of the Universe. These magnificent achievements have been driven by a refusal to accept what has not yet been proven through experimentation — an approach that has, literally and figuratively, propelled his work to stratospheric heights.

Prof Ting was born in the US in 1936 to parents who were scholars. They hurried home from America to China soon after his birth to show solidarity with their countrymen during the anti-Japanese war. Prof Ting had an uneven education during these turbulent times, but returned to the US at age 20 to begin a brilliant academic career. He studied at the University of Michigan, taking bachelor degrees in both engineering physics and engineering mathematics. Over the following three years he completed both Master's and doctoral degrees.

His achievements led to a posting in 1963 as a Ford Foundation Fellow with the European Organization for Nuclear Research — a group he still has links with — before he took up a teaching post at Columbia University in 1965. Soon after, an experiment at the Cambridge Electron Accelerator caught his eye, the results of which would have lasting impact on our understanding of matter, particularly in its smallest forms. The Cambridge experiment appeared to show some particles behaving in violation of expectations. Prof Ting began to investigate, and by 1974 he

had enough evidence to demonstrate the existence of a new heavy particle — the *J particle*.

The *J particle* family has fundamentally different properties. Other than being heavier, their lifetime is about 10,000 times longer than all other known sub-atomic particles. These properties were totally unexpected, showing the existence of a new form of matter.

The Swedish Academy of Sciences described his achievement as being “like hearing a cricket close to a jumbo jet taking off”. On the other side of the American continent, Prof Burton Richter of Stanford University had made a similar discovery, calling his particle “ Ψ ” (psi). They announced their findings together and shared the Nobel Prize, which was awarded with remarkable speed, less than two years after their discovery.

A new research field in elementary particle physics — the study of the smallest components of matter — was then opened up. These particles are of great importance in our understanding of the basic structure and forces of the material world, and may also provide clues to the Big Bang theory and the origins of the Universe. Prof Ting is now investigating this possibility. He is leading more than 450 physicists and engineers from 16 countries in the design and construction of the Alpha Magnetic Spectrometer, which is scheduled to fly on the International Space Station within the next two years in search of evidence of the Big Bang.

Venturing into the unknown and refusing to accept anything that does not have experimental proof is a hallmark of Prof Ting's work, and something for which he has been much honored. In addition to his Nobel Prize, he has received the

Ernest Orlando Lawrence Award from the US Government and the DeGasperi Award in Science from the Italian Government, among many other international honors. He also holds Doctor *honoris causa* degrees from the University of Michigan, the Chinese University of Hong Kong, Columbia University, the University of Bologna and Moscow State University, and is an honorary professor at Shanghai Jiao Tong University.

Mr Chancellor, I have the honor to present to you, on behalf of the University, Prof Samuel C C Ting, a world-leading physicist and winner of the 1976 Nobel Prize, for the degree of Doctor of Science *honoris causa*.