

Professor Samuel C.C. Ting

Doctor of Science *honoris causa*

Citation

Professor Samuel C.C. Ting is a distinguished physicist and Nobel laureate who, over his career spanning several decades, has made groundbreaking contributions to the fields of particle physics and astrophysics. Professor Ting holds membership in prestigious scientific academies such as the U.S. National Academy of Sciences, the Soviet Academy of Science and the Russian Academy of Science, the Royal Spanish Academy of Science, the Chinese Academy of Sciences, and many others. He is the Thomas Dudley Cabot Professor of Physics at the Massachusetts Institute of Technology (MIT). Professor Ting has dedicated his life to unravelling the mysteries of the universe.

Born in Ann Arbor, Michigan, he was taken to China by his parents at three months of age. He grew up in Chongqing, Nanjing, and Taipei during the war years. Professor Ting developed an early passion for science and mathematics. In 1956, he returned to the United States to attend the University of Michigan in Ann Arbor. In 1962, he left the University of Michigan with a Bachelor's degree in Mathematics, a Bachelor's degree in Physics, a Master's degree in Physics, and a Ph.D. degree in Physics.

Professor Ting joined the faculty at Columbia University, where he discovered the first heavy nuclei antimatter; the antideuteron. He also did an experiment showing the electron has no measurable size. In 1967, he joined the faculty at MIT and conducted a series of experiments on light rays and massive light rays at the Deutsches Elektronen Synchrotron (DESY) in Hamburg, Germany. This series of experiments provided unique knowledge of the properties of high energy light rays.

In 1974, at the Brookhaven National Laboratory on Long Island, New York, he led an experiment which discovered a new form of matter, known as the J Particle. This discovery contradicted the prevailing theory of the basic building blocks of Nature and was known as the "November Revolution". For this work, he was awarded the Nobel Prize two years later.

To emphasise to the young Chinese students that physics is an experimental science, he delivered his Nobel acceptance speech in Mandarin.

He spent the next 20 years working at the highest energy accelerator in the world, the 27 km electron positron collider (LEP) located at the European Center for Nuclear Research (CERN) in Geneva, Switzerland. There he led a 20-nation, 600-physicist group and conducted an experiment to probe the detail of the beginning of the Big Bang and the results of the experiment showed the universe is made out of three types of electrons and six kinds of quarks.

Beginning in 1994, he proposed a precision physics detector to place on the International Space Station to study the origin and properties of cosmic rays, to search for the universe made out of antimatter and the origin of dark matter. To date, this experiment, known as the Alpha Magnetic Spectrometer (AMS), has produced results which have fundamentally changed our understanding of the cosmos. Professor Ting leads this experiment and is in the laboratory most of the time.

The primary motivation of his scientific research is curiosity and his determination to advance our knowledge of nature and the universe. Professor Ting's relentless pursuit of excellence makes him a true visionary in physics. Throughout his career, Professor Ting has received numerous accolades and honours in recognition of his exceptional contributions to science. He holds honorary doctorates from the University of Michigan, Columbia University, University of Bologna, Moscow State University, The Chinese University of Hong Kong, The Hong Kong University of Science and Technology, Hong Kong Baptist University, and many others.

Mr Chairman, it is my honour to introduce you, on behalf of Lingnan University, to Professor Samuel C.C. Ting, a world-renowned physicist for the conferment of the degree of Doctor of Science *honoris causa*.

Citation written and delivered by Professor Paulina Wong Pui-yun

丁肇中教授

榮譽理學博士

贊辭

丁肇中教授是傑出的物理學家和諾貝爾獎得主，付出數十年的時間和心血，在粒子物理學及天體物理學領域作出了開創性的貢獻。丁教授是美國國家科學院、蘇聯科學院及俄羅斯科學院、西班牙皇家科學院、中國科學院等眾多著名科學院的院士，並於麻省理工學院擔任Thomas Dudley Cabot物理系教授。丁教授畢生致力探索宇宙的奧秘。

丁教授出生於密西根州安阿伯市，在三個月大時被父母帶到中國，戰亂期間在重慶、南京和臺北長大。他很早便已對科學和數學產生濃厚興趣。在1956年，他回到美國的安阿伯市入讀密西根大學。在1962年，他離開密西根大學之際，已取得數學學士學位，以及物理學學士、碩士及博士學位。

丁教授其後加入哥倫比亞大學，並首次發現了重核反物質——反氦核。他亦進行了一項實驗，揭示電子的大小無法測量。在1967年，他加入麻省理工學院，在德國漢堡的德國電子加速器同步研究所(DESY)展開了一系列光射線及大質量光射線的實驗，為高能光射線的特性提供了獨特認知。

1974年，他於紐約長島布魯克海文國家實驗室領導一項實驗，發現了一種新的物質形態，稱為J粒子。這一發現推翻了當時盛行的自然界基本組成要素理論，被稱為「十一月革命」。憑藉這項工作成果，他在兩年後獲得諾貝爾獎殊榮。

為了向年青的中國學生凸顯物理是一門實驗科學，他以普通話發表諾貝爾獎得獎感言。

其後20年，他一直於瑞士日內瓦的歐洲核子研究中心(CERN)的世界最高能加速器——周長27公里的正負電子對撞機(LEP)工作。他在那裡帶領一個由20個國家、600名物理學家所組成的團隊，進行了一項探索宇宙大爆炸開端細節的實驗，結果顯示宇宙由三種電子及六種夸克組成。

在1994年初，他提出在國際太空站設置精密的物理探測器，以研究宇宙射線的起源及特性，尋找由反物質構成的宇宙及暗物質的起源。迄今為止，這項被稱為阿爾法磁譜儀(AMS)的實驗已取得成果，從根本上改寫了我們對宇宙的認知。丁教授帶領著這項實驗進行，並長期身處實驗室之中。

好奇心及矢志於拓展我們對自然和宇宙的認知，乃是他從事科學研究的重要驅動力。丁教授努力不懈地追求卓越，使其成為物理學界一位真正具有遠見卓識的學者。在他的事業生涯中，丁教授贏得了無數讚譽和榮銜，以表彰他對科學的重大貢獻。他擁有密西根大學、哥倫比亞大學、博洛尼亞大學、莫斯科國立大學、香港中文大學、香港科技大學、香港浸會大學等頒授的榮譽博士學位。

主席先生，本人感到榮幸能代表嶺南大學向閣下介紹世界著名物理學家丁肇中教授，並恭請閣下頒授榮譽理學博士學位予丁教授。

贊辭由王沛欣教授撰寫及宣讀