

Honorary Doctor of Science Professor Hesheng Chen

Public Orator, Professor Ren Yang



Mr Pro-Chancellor,

Professor Hesheng Chen is an internationally renowned scientist, whose groundbreaking discoveries in diverse fields of particle physics over the years have significantly broadened and deepened our knowledge of matter that constitutes our universe, allowing us to comprehend the world we live in with a degree of minute precision that was once unimaginable. His work transcends the boundaries of physics as we normally understand them and has improved our lives in many practical ways.

Striving and contributing to the strength of the nation is the guiding philosophy that underpins Professor Chen's distinguished academic career. He currently serves as the Head of Command and Project Manager of China Spallation Neutron Source (CSNS). He previously served as the Director of the Institute of High Energy Physics, Chinese Academy of Sciences (CAS), President of the High Energy Physics Branch of the Chinese Physical Society (CPS), and Vice President of CPS. Professor Chen was elected as a member of CAS in 2005.

Professor Chen has participated in a wide range of international and national scientific research projects with far-reaching impact. Notably, he was involved in the Mark-J experiment for the discovery of gluon jets at the Deutsches Elektronen-Synchrotron (DESY) in Germany, the L3 experiment at the European Organization for Nuclear Research (CERN). Additionally, he served as the Project Manager for the Beijing Electron-Positron Collider (BEPC-II) upgrade project, and contributed to the development of the permanent magnet system, which represents the first large magnet in space for the Alpha Magnetic Spectrometer (AMS). He also led the construction of CSNS, which is the country's first pulsed spallation neutron source and the fourth of its kind in the world.

Professor Chen's remarkable achievements have earned him numerous prestigious honours, including the CAS Outstanding Achievement Award (1st Class) in 1999 and 2011, the National Science and Technology Award (2nd Class) in 2000, and the Helmholtz International Fellow Award in 2013.

Professor Chen's journey as a scientist is an inspiration for us all. His life-long engagement with physics began in high school upon discovering *The Evolution of Physics*, co-authored by Albert Einstein and Leopold Infeld, which immediately captured his imagination. In 1964, he began his formal education at Peking University.

His unwavering belief that science and technology are indispensable to China's development guided his academic and research path. In 1978, he was one of 15 Chinese students selected to work at DESY in Germany with Professor Samuel Ting, Nobel Laureate in Physics. There, he made major contributions to the discovery of gluon jets and the systematic study of gluon physics. After obtaining his PhD from Massachusetts Institute of Technology (MIT) in United States in 1984, he worked as a postdoctoral researcher in MIT for about half a year.

Motivated by a strong desire to serve his country, Professor Chen returned to China and became the first postdoctoral researcher at the CAS during the early stages of the

postdoctoral system. Despite facing initial challenges in securing funding and laboratory resources, Professor Chen persevered, and as the postdoctoral system matured in China, the conditions were ripe for him to leave his stamp on the scientific field.

The major scientific installations that Professor Chen established and continues to manage yield results that benefit humanity. His research has numerous applications, including food sterilisation, medical treatment, transportation safety, and space exploration. Notably, his work on neutron irradiation has contributed to advances in Boron Neutron Capture Therapy (BNCT), which utilises short-range alpha particles and lithium ions to target and destroy cancer cells while preserving surrounding healthy tissue. This treatment reduces medical costs and shortens hospital stays for patients. Additionally, his studies in neutron scattering have improved technologies for detecting residual stress in metals, which is crucial for safety in deep-sea excursions and transportation systems, such as high-speed railways.

Professor Chen is a Senior Fellow of the Hong Kong Institute for Advanced Study at City University of Hong Kong (CityUHK) and currently serves as co-director of the Joint Laboratory on Neutron Scattering, established by CityUHK and the CAS. From the beginning, Professor Chen was confident in choosing CityUHK as the partner for this project, impressed by the strength of its research team and their significant scientific outputs. He advocates for increased investment in science and technology in Hong Kong, emphasising that its openness positions the city well to provide high-quality science and technological education to young people and attract world-renowned scientists from around the globe.

Mr Pro-Chancellor, Professor Hesheng Chen has overcome significant challenges in his early life to become a world-leading scientist. His passion for science and dedication to serving his country are the twin forces that have continually propelled him forward. CityUHK greatly values its collaboration with him, and the world is grateful for the advancements he has made to improve our lives. It is with great respect that I present to you Professor Hesheng Chen for the conferment of Doctor of Science, *honoris causa*.