
Honorary Doctor of Science

Professor BAI Chunli

Citation written and delivered by Professor LIU Chain-tsuan

Chancellor:

It is my great honour to present to you Professor Bai Chunli, President of the Chinese Academy of Sciences (CAS), who is not only one of China's most eminent scientists and an outstanding nanotechnological pioneer but a highly accomplished science and technology leader.

Born in 1953 in the city of Dandong, Liaoning Province, Professor Bai received his bachelor's degree from Peking University in 1978. He continued his studies at the Chinese Academy of Science's Institute of Chemistry, where he received his MSc and PhD degrees in 1981 and 1985 respectively. From 1985 to 1987, he undertook postdoctoral research at the famous California Institute of Technology in the United States, after which he returned to China to join the Academy. From then until now he has been conducting research and providing leadership there, with the exception of 1991-1992 when he was a visiting professor at Tohoku University in Japan. He was promoted to the CAS Vice-Presidency in 1996, was elected to membership of the Academy in 1997, and has been President of its Graduate School since 2001. He was promoted to CAS Executive Vice-President in 2004, then CAS President and Chairman of the Presidium of the Academic Divisions of the CAS in 2011. With a big honour, he was selected as the new President of the Academy of Sciences for the Developing World in September this year.

At this point please allow me to offer a brief review of the development of scientific education in contemporary China, since this forms the background to Professor Bai's exceptional career. In 1976 China had to face the daunting challenge of making a fresh start in the many areas of national life that the Cultural Revolution had devastated. Scientists especially were looking forward to the return of "a springtime for science" after the turmoil was over. Marshal Ye Jianying, a leader of the central government at that time, wrote a poem, which, employing military language and metaphor, encourages scientific and technological workers to brave hardships and scale new heights:

*Fear no hardships in your studies,
Just as soldiers quail not at solid walls when besieging a city.
While the road of science is full of obstacles,
They can be surmounted after bitter struggles.*

Professor Bai was one of numerous young students who were inspired by this poem to devote themselves heart and soul to scientific work.

In 1978, in a speech delivered at the National Science Conference, Mr Deng Xiaoping, then Vice-Chairman of the Central Committee of the Chinese Communist Party, further elaborated on the importance of science and technology in China's development, stating that he himself would like to serve as the head of logistics for science and technology personnel. This powerfully motivated Professor Bai to return to China immediately on completion of his post-doctoral work at California Institute of Technology in order to serve his country in the field of science and technology.

As a scientist, Professor Bai's research spans many areas, from the structure and properties of polymer catalysts, X-ray crystallography of organic compounds, and molecular mechanics and extended X-ray absorption fine structure (EXAFS) research on conductive polymers. From mid-1980s, Professor Bai devoted himself in particular to the study of scanning tunneling microscopy and established the Youth Laboratory of Nanoscience and Technology at CAS, thereby pioneering the development of nanotechnology in China. Under his leadership his team built China's first Atomic Force Microscope, which was used to observe the surface structures of several conductors, semi-conductors and insulators. His group also remolded the sweep tunnel microscope probe to adapt the microscope to low temperature and vacuum conditions. All of these are regarded as Professor Bai's greatest pioneering feats. He is also the Founding Director of the China National Center for Nanoscience and Technology and the Chief Scientist of the National Steering Committee for Nanotechnology.

These are only a few of the most outstanding and celebrated scientific achievements of Professor Bai. Indeed, his scientific work is so remarkable that in scientific and technological fields his name has become widely known not only at home but internationally. Professor Bai has accordingly been showered with numerous awards and honours over the years. In 1997, for example, he was elected a Fellow of the Academy of Sciences for the Developing World. He has also been made a Foreign Associate of the National Academy of Sciences of the United States,

a Foreign Member of the Russian Academy of Sciences, an Honorary Fellow of the Royal Society of Chemistry of the United Kingdom, an Honorary Fellow of the Indian Academy of Sciences, a Foreign Member of the Royal Danish Academy of Sciences and Letters and German Academy of Science and Engineering. Over 10 universities have also conferred on him honorary doctorates or honorary professorships.

In early 2000, Professor Bai paid several visits to Oak Ridge National Laboratory (ORNL) of the United States, an important centre for nanotechnology research, where he delivered a special report on “The Development of Nanotechnology in China”. I was working there at the time and was very much impressed by his knowledge, enthusiasm, and readiness to communicate with others. At ORNL, we all were touched by his vision and dedication to the further development of science and education in China.

In addition to conducting scientific research, Professor Bai spares no effort in searching for and bringing on talented young people for the benefit of China’s science and technology, going out of his way to help them in whatever way he can. He also actively promotes international exchanges. In 1996, he was made Vice-President of CAS, and demonstrated great far-sightedness and originality in leadership when he introduced an unprecedented Hundred Talents Program, inviting top-level scientific and technological talents to China from all over the world to collaborate with China’s scientists in research. He also launched “West Light” and “Northeastern Spring” Programs to nurture talents for the western and northeastern regions.

The central government attached great importance to the “Hundred Talents” Program, which was later expanded to become a “Thousand Talents” Program in an effort to recruit top-ranking scientists from other parts of the world. The programme has since been even further expanded to become a “Ten Thousand Talents” Program designed to enable China’s best scientists to lead teams of scientific and technological workers for creative thinking toward scientific discovery.

As leader of the Academy, Professor Bai is very conscious that these outstanding individuals need the right conditions and facilities to ensure that they can deliver their best. He has therefore launched another unprecedented initiative: the “3 H’s Program”, which takes care of the Home, House, and Health of scientific and technological talents. The aim is to make sure that their families are well provided for, with appropriate living accommodation and healthcare, so that they can devote themselves

whole-heartedly to scientific and technological research free of domestic worries. Professor Bai has appointed a Deputy Secretary-General of CAS to take day-to-day charge of this programme, which he personally oversees. Often calling himself the logistics minister of CAS, Professor Bai serves China's scientists to the very best of his ability. His lofty aspirations are truly admirable.

As the Academy's membership has rapidly expanded, a minority have incurred criticism for failing to conduct themselves appropriately. Professor Bai has therefore launched yet another unprecedented initiative under which scientists elected to the Academy receive their membership certificates only after they have signed an undertaking not to take advantage of their positions for personal gain or to do part-time work to the detriment of their scientific research. In view of the special environment in China, this is a measure of the greatest significance, and constitutes a solid groundwork for the management of China's scientific and technological talent.

Mr Chancellor, in order that we may honour Professor Bai for his exemplary and remarkable achievements in a variety of scientific fields, in the expert management of technology, and in the fostering of scientific and technological talent, all of which have contributed immeasurably to China's scientific and technological development, I am privileged to present him to you for the conferment of the degree of Honorary Doctor of Science.