

## **Honorary Doctor of Science**

### **Professor Serge HAROCHE**

Citation written and delivered by Professor LU Jian

Mr Pro-Chancellor:

Professor Serge Haroche is one of France's foremost intellectuals, a champion of science, humanity and human civilisation. His preeminence in devising groundbreaking experimental methods that enable the measurement and manipulation of individual quantum systems is why CityU honours him today.

Professor Haroche can look back upon a highly distinguished career. He graduated from the École Normale Supérieure and received his doctorate from Paris VI University in 1971. After a post-doctoral visit to Stanford University in the laboratory of Arthur Schawlow, he became full Professor at Paris VI University in 1975. In 2001, he was appointed Professor at the Collège de France and became President in 2012, a position he held until 2015.

His pioneering work on observing photons contributed to his winning the Nobel Prize five years ago along with his great friend Professor David Wineland who was also working on trapping atoms with his group in Colorado. Both sets of teams, one in France and one in the US, were closing in on similar findings. Their work describing the observation of isolated quantum systems covered similar territory, with their studies of decoherence in experiments bearing strong parallels. Professional compatibility led to personal friendship and a vacation in Italy in the summer of 1996, and ultimately to jointly being awarded the Nobel Prize for Physics in 2012.

Observing photons is tough because most means of doing so interfere with any experiment. Professor Haroche and his colleagues developed a non-destructive method of detecting the presence of photons using a super-cold, super dark box lined with highly reflective mirrors that force the photons to bounce around in the box. Professor Haroche and his team could observe and measure the photons with greater accuracy than ever before once the photons had been detected.

Professor Haroche has received countless awards throughout his career. In addition to the Nobel Prize in 2012, he was awarded the CNRS Gold Medal in 2009, the highest French scientific award. Professor Haroche also holds an honorary doctorate from the Weizmann Institute of Science and the universities of Montreal, Patras, Strathclyde and Bar Ilan. He is a Member of the French Academy of Sciences and the European Academy of Sciences; and a Foreign Member of the National Academy of Sciences in the US, the American Academy of Arts and Sciences, and Brazilian, Colombian, Moroccan and Russian academies of sciences.

Despite winning significant international prizes and awards throughout his career, Professor Haroche quickly points out that his achievements reflect the work of his team, and not his specific role. He considers himself a representative of the huge contributions of his colleagues and research students over the years. After all, he has learned from the best. Whether it was during his post-doctoral stay at Stanford University or during his years in France, he has been fortunate to have enjoyed world-class teachers and colleagues. Renowned physicist and Nobel Laureate Professor Claude Cohen-Tannoudji supervised Professor Haroche's PhD dissertation, and has remained a close friend ever since. Other major influencers were Professor Alfred Kastler and Professor Pierre-Gilles de Gennes, two physicists who have not only won the Nobel Prize in Physics, in 1966 and 1991, respectively, but who have also played a crucial role in shaping Professor Haroche's career. Professor Kastler's pioneering lectures inspired the young Serge Haroche in the 1960s while he was a student at the École Normale Supérieure with quasi-poetic descriptions of atoms and photons. And it was Professor Pierre-Gilles de Gennes who, along with Professor Cohen-Tannoudji, invited Professor Haroche to join the highly prestigious Collège de France later in his career. Admitted to the elite ranks of France's most renowned thinkers, scholars and researchers is truly one of the greatest honours for Professor Haroche. He has subsequently repaid the faith that the Collège invested in him and taken on the role of "Administrateur du Collège", a position that serves as the equivalent of president.

We, at CityU, are all too aware of his strengths as public intellectual. His expansive and highly thoughtful talk at CityU in November 2015 after a series of tragic attacks in Paris revealed the depth and scope of his vision, humanity and learning.

Mr Pro-Chancellor, Professor Serge Haroche has contributed immensely to the world of science and is a great friend of CityU, a distinguished Senior Fellow at our Institute for Advanced Study. It is my honour to present to you Professor Serge Haroche for the conferment of a Doctor of Science, *honoris causa*.