# Professor Cheuk-Yiu Ng – Biographical Sketch

*Siu Lien Ling Wong Visiting Fellow 2008/2009, Chung Chi College, The Chinese University of Hong Kong*

Professor Cheuk-Yiu Ng was born in a farming village of Taishan in southern Guangdong Province of China. His parents moved to Hong Kong when he was eight years old. Thus, he essentially grew up and received all his education from elementary school to college in Hong Kong. Blessed with good fortune, he was inspired by many good teachers, who played important roles in shaping his life and academic career. Following the advice of his grade school teacher, whom he admired, he attended Clementi Middle School, where his interest in academic pursuit was greatly stimulated by his mathematics teacher, Ms. Hoi-Hung Poon. After finishing high school in 1967, he entered Chung Chi College of The Chinese University of Hong Kong (CUHK), majoring in chemistry. The four years of college life at Chung Chi reinforced his desire to seek a career in academic research and teaching. Stimulated by his undergraduate research experience with Professor Wai-Kee Li and the teaching of Professor Li and Professor Shang-Wai Tam, he became interested in chemical bonding and symmetry control of chemical reactions. When he graduated from the CUHK in 1971, he was selected as an exchange student by the University of California (UC). With this selection, he could have chosen to study at any one of the UC Campuses. However, in hoping to become a theorist, he decided to study physical chemistry at The University of Chicago. There, he met Professor Yuan-Tseh Lee and was greatly impressed by his research. He decided to study experimental reaction dynamics using the molecular beam method under the guidance of Professor Lee. Professor Lee was then an Associate Professor and subsequently a co-winner of the 1986 Nobel Prize in Chemistry for his pioneering work on reaction dynamics. In the summer of 1973, Professor Ng followed the relocation of Professor Lee to UC Berkeley and the Lawrence Berkeley National Laboratory (LBNL). His learning and thesis research was benefited from the excellent technical facilities at LBNL. By all measures, UC Berkeley and The University of Chicago were the two best schools in physical chemistry at the time. Professor Ng has felt blessed to have the opportunity to be educated at both schools. He completed his Ph.D. thesis research at LBNL and received his Ph.D. degree in Physical Chemistry from UC Berkeley in 1976.

Upon graduation, Professor Ng began his academic career as an Assistant Professor in the Chemistry Department of Iowa State University (ISU) in 1977, along with a concurrent Chemist position in the Ames Laboratory of the U.S. Department of Energy. He was promoted to Associate Professor in 1982, Full Professor in 1986, and Distinguished Professor in 1996. After staying at ISU for 24 years, Professor Ng moved to UC Davis in 2001 as a Distinguished Professor of Chemistry to set up new experiments and to expand his research in the Chemistry Department. In the past few years at UC Davis, he has successfully established state-of-the-art laser systems covering from infrared to vacuum ultraviolet (VUV), as well as new apparatuses for novel studies of photoionization, photodissociation, photoelectron energy, and ion-molecule collision dynamics. Professor Ng has served as the adviser for more than 35 Ph.D. students and about the same number of postdoctoral associates in the past 30 years. Currently, he leads a research group of about a dozen Ph.D. students and postdoctoral associates with research supports from the U.S. Department of Energy, the Air Force Office for Scientific Research, the National Science Foundation, and the National Aeronautics and Space Administration.

Professor Ng is known for his exceptional experimental research pioneering in VUV photoionization and photodissociation studies of molecules, radicals, and clusters with unprecedented accuracy. His experiments have provided ionization energies, bond dissociation energies, and spectroscopic parameters of many neutral and ionic species with exceedingly high precision. These high-resolution studies of molecular species no doubt shed light on their detailed chemical bonding properties that govern the chemical reactivity. These measurements have served, and will continue to serve, as a benchmark for the development of theoretical calculations. Applying his expertise, Professor Ng has constructed unique apparatuses to photoionize atomic and

molecular ions in selected internal energy states for reactivity studies. The ion-molecule collision studies that involved an array of state-selected ions have provided valuable insight into the interplay of kinetic energy and internal energy effects on chemical reactivity. This remarkable work has significantly improved our understanding of chemical reactivity of ions. Recently, he has further introduced novel experimental schemes, allowing high-resolution infrared spectroscopy, photoionization, and photodissociation measurements to be made for many polyatomic species. In addition to the fundamental value, his research is also of relevance to mass spectrometry, combustion chemistry, atmospheric chemistry, and astrochemistry.

In addition to his research efforts, Professor Ng has also been actively involved in editing books and organizing conferences. Currently he is the editor-in-chief for the Advanced Series in Physical Chemistry and a co-editor of the Wiley Series in Ion Chemistry and Physics. He has edited 12 books in the fields of photoionization-photoelectron spectroscopy, photodissociation dynamics, and ion-molecule collision dynamics. He was the founding Chair of the Gordon Research Conference on "Structures, Energetics, and Reaction Dynamics of Ions".

Professor Ng has had more than 280 research publications to his credit, including 257 refereed journal articles and 15 reviews. He and his group members have presented about 280 invited lectures at national and international conferences, workshops, research institutes, and universities. As recognitions of his academic achievements, he was named Alfred P. Sloan Foundation Fellow in 1981, Camille and Henry Dreyfus Teacher-Scholar in 1982, Fellow of the American Physical Society in 1993, Senior Fellow of the Japan Society for the Promotion of Science in 1997, and Fellow of the American Association for the Advancement of Science in 2005. In addition, he was presented the Alexander von Humboldt Senior Scientist Award in 1998.

In his early years, Professor Ng envisioned the opportunity of promoting scientific research in Hong Kong and China. Although this dream has not been totally fulfilled, he is pleased to see that many of his former students have now successfully established their teaching and research careers in Hong Kong, China and Taiwan. When called upon, Professor Ng is always enthusiastic to spend time and to lend a hand with the scientific developments in these places. He served as the visiting examiner of the Chemistry Department of CUHK in the period of 1994-1997, and has been an Honorary Professor of Zhengzhou University, China since 1985. He has been serving, for a few years, as the Honorary Director of the National Synchrotron Radiation Laboratory of the Chinese National Academy of Sciences in Hefei, China.

Professor Ng has a positive outlook in life. He always encourages his students to seek their true passion and live a fulfilled life. During his graduate student years, he learned the difference between "impressed" and "inspired." Researchers who are "impressed" do their work in order to get a return in the form of financial gains, recognitions, and awards. On the other hand, those who are "inspired" carry out their work with the goal to understand how and why things happen. The happiest and the most successful researchers are the "inspired" people who find excitement and fulfillment in their work, such that they can work for long hours without feeling tired and stressed.

Other than academic learning and research, Professor Ng enjoys painting, Chinese calligraphy and listening to Chinese music. He and his wife, Ms. Chui-Ling Wong, also a chemistry alumna of Chung Chi, have raised three children, and have recently become grandparents. With his children all grown up, Professor Ng is finding additional passion and energy to continue his academic pursuit.