

Biographical Sketch of Chi-Ming Che

Prof. Chi-Ming Che was born and educated in Hong Kong. He received his B.Sc. with First Class Honors in 1978 and Ph.D. in Inorganic Chemistry in 1982, both from The University of Hong Kong (HKU). From 1980 to 1983, he studied at the California Institute of Technology as a research student under the supervision of Prof. Harry B. Gray. Afterwards, he returned to his alma mater as a Lecturer in 1983 and was appointed Chair Professor of Chemistry in 1992. Since 1999 he has been the Dr. Hui Wai-Haan Chair of Chemistry at HKU.

Prof. Che has received the following prizes and awards in recognition of his achievements. In 1994, he received the Sixth National Natural Science Award of China for his contributions in the area of Oxidation Chemistry of High-Valent Ruthenium-Oxo Complexes. **At the age of 38, he became an elected member of the Chinese Academy of Sciences (CAS) and remained the youngest academician in the history of CAS** until 2001, when his former Ph.D. student, Prof. Vivian Wing-Wah Yam, was elected to the CAS also at the age of 38. He was the first Hong Kong citizen to receive this honor. In 1997, he received the first Croucher Senior Fellowship award from Croucher Foundation of Hong Kong and the Chung-Hsing S & T Lectureship from Taiwan. In 2000 he was the sole recipient of the first Distinguished Research Achievement Award from The University of Hong Kong. **He is the recipient of the First Class National Natural Science Award of China (2006) and is the first and only Hong Kong scientist and one of the few Chinese chemists on whom this honor has been bestowed by People's Republic of China.** Other awards include: IUF Invited Professorship from France (2002); National Outstanding Young Scholar Award (2003); Federation of Asian Chemical Societies Foundation Lectureship (2003); Fellow of World Innovation Foundation (2004); Fellow of Federation of Asian Chemical Societies (2005); TWAS Prize in Chemistry from the Academy of Sciences for the Developing World (2006); Pfizer Lectureship (2006); **Seaborg Lectureship at the University of California at Berkeley** (2007), Fellow of the Academy of Sciences for the Developing World (2007), and Prize of Ho Leung Ho Lee (HLHL) Foundation for Scientific and Technological Progress (2007) (the first Hong Kong scientist to receive this honor), **Edward Clark Lee Lectureship at University of Chicago** (2008), and the Leader of Year 2008 (Research). He holds professorships and invited professorships at The National Taiwan University, Nanjing University, Peking University, Jilin University, Tsing-Hua University and Nankai University. He is an Honorary Professor at the Institute of Photographic Chemistry of Chinese Academy of Sciences (1997), State Key Laboratory of Organometallic Chemistry at Shanghai Institute of Organic Chemistry of Chinese Academy of Sciences (1996), Huazhong University of Science and Technology (1999), and Northeast Normal University (2002).

In 2005, Prof. Che was ranked 21st in a list of the world's top 40 most cited authors for their papers published in the widely-read journal *Chemical Communications* between 1965 and 2004, and *Chemical Communications* published an interview with Prof. Che. **He is listed as one of the Highly Cited Researchers worldwide by ISI HighlyCited.com** (*Institute for Scientific Information (ISI) Web of Knowledge, Thomson-ISI*), and as one of the Angewandte's top authors (ChemViews Magazine, DOI:10.1002/chemv.20100053). According to the *Web of Science (Thomson-ISI)*, Prof. Che has an H-index of 74, with over 10479 total citations excluding self-citations.

Prof. Che is currently an International Advisory Board Member of *Chemistry - A European Journal*, *Chemistry - An Asian Journal*, *Trends in Inorganic Chemistry*, and *ChemCatChem*. He is a former International Advisory Board member of *Journal of Chemical Society*, *Dalton Transactions* (1998–2002), *European Journal of Inorganic Chemistry* (2001–2006), and *New Journal of Chemistry* (1998–2000). **He has published over 680 papers in leading chemistry journals with high impact**

factors, including 51 papers in *Journal of the American Chemical Society*, 28 papers in *Angewandte Chemie, International Edition*, 43 papers in *Chemistry - A European Journal*, 105 papers in *Chemical Communications*, 107 papers in *Dalton Transactions*, 75 papers in *Inorganic Chemistry*, 19 papers in *Organometallics*, 26 papers in *Organic Letters*, 8 papers in *Advanced Materials*, 13 papers in *Applied Physics Letters*, 1 paper in *Accounts of Chemistry Research*, 8 papers in *Coordination Chemistry Reviews*, 6 papers in *Proteomics*, and 3 papers in *Cancer Research*. **He is ranked the 92nd most cited chemist worldwide** according to SCI citations between January 1, 1999-February 28, 2009. He holds 10 Patents on New Materials, and four patents related to Catalysis and Inorganic Medicines.

A total of over 100 Ph.D. students have graduated from Prof. Che's group, at least ten of them hold Professorships at the universities in Hong Kong, Taiwan, Singapore, and U.S.A. *He is currently the Director of the HKU-CAS Joint Laboratory on New Materials and Convenor of the Institute of Molecular Technology for Drug Discovery and Synthesis, an Area of Excellence Program awarded by University Grants Committee of Hong Kong.* In 1998, he successfully launched three joint laboratories: the HKU-CAS Joint Laboratory on New Materials at HKU, the Shanghai-Hong Kong Joint Laboratory in Chemical Synthesis at Shanghai Institute of Organic Chemistry, and the HKU-Peking University Joint Laboratory on Rare-Earth Materials and Bioinorganic Chemistry at Peking University. The research undertaken at these laboratories aims to develop functional molecular materials based on coordination chemistry for use in optoelectronic devices and medicinal chemistry, as well as new catalysts for green chemical reactions and solar energy storage reactions.

Since 1983, Prof. Che has delivered more than 34 plenary and keynote lectures, and 63 invited lectures at international as well as national conferences. He has been awarded 10 prestigious Lecturerships including the 2007 Seaborg Lecturership at the University of California Berkeley and 2008 Edward Clark Lee Lectureship at University of Chicago. Significantly, he has delivered plenary lectures and keynote lectures at prestigious international conferences on Inorganic Chemistry, Organic Chemistry, Photochemistry, and Inorganic Medicines. **He delivered a Plenary Lecture at the 30th International Conference on Coordination Chemistry (ICCC) at the age of 37** (Plenary Speakers of this conference included Prof. M. L. H. Green of Oxford University, Prof. R. H. Holm of Harvard University, Prof. J. P. Sauvage of Louis Pasteur University). He was a Keynote Speaker at the Dalton Discussion 10. **He delivered another Plenary Lecture at the 38th ICCC** to be held at Israel in July 2008 [Plenary Speakers of this conference include Prof. R. R. Schrock (2005 Nobel Prize Laureate) and Prof. H. B. Gray (2004 Wolf Prize Laureate)]. On 17 occasions, his publications are highlighted on the front covers (11) or inside front covers (6) in *Chemistry - A European Journal*, *Chemistry - An Asian Journal*, *Inorganic Chemistry*, *Dalton Transactions*, *Chemical Communications*, and *Angewandte Chemie, International Edition* and *Journal of the American Chemical Society*. His works have been highlighted in *Chemtracts - Inorganic Chemistry* and in the Highlights section of *Angewandte Chemie, International Edition* and *Chemical and Engineering News USA*. He has been highlighted as being among the most prolific authors for his publications in *Chemistry - A European Journal* and in *Chemical Communications*.

Prof. Che [H-index: 74] has made seminal contributions to inorganic and photochemistry and to the integration of inorganic chemistry with materials science, catalysis, and biomedical science. He pioneered the chemistry of triplet excited states of coordinately unsaturated metal complexes and is a leading figure in developing reactive metal-ligand multiple bonded complexes for biomimetic atom and group transfer reactions. Specifically, he has widened the horizon of research in the photochemistry and photophysics of phosphorescent metal complexes by making use of Synthetic Chemistry and by discovering the luminescent properties of diverse classes of triplet excited states of transition metal compounds. He made use of triplet excited states as powerful one-electron oxidants and reductants in the study of highly exothermic electron transfer and atom transfer reactions in biological systems and for inner-sphere substrate binding reactions in the excited states; he greatly expanded the scope of photochemistry research by developing highly phosphorescent d^{10} and d^8 metal compounds, examples include [1] $[\text{Pt}_2(\text{P}_2\text{O}_5\text{H}_2)_4]^{4-}$ as a molecular photocatalyst, [2] luminescent cyclometalated Pt(II) complexes as protein- and DNA-binding probes and as inhibitors of enzymes, [3] highly robust phosphorescent platinum(II) complexes as OLED emitters, and [4] functional nanostructured molecular materials with optoelectronic applications self-assembled from phosphorescent platinum(II) complexes; he developed the first molecular catalyst for enantioselective oxygen atom transfer from dioxygen to organic molecules and for aerobic Wacker type oxidation of terminal alkenes without the use of a co-reductant; he pioneered the synthesis, structural and reactivity studies of reactive metal-oxo, -tosylimido, and -biscarbene complexes and developed the first structurally characterized non-OsO₄ metal-oxo complexes capable of converting alkenes to *cis*-diols; he developed a variety of highly selective metalloporphyrin-catalyzed oxygen atom and imido and carbene group transfer reactions as useful tools for practical organic synthesis; he has recently accomplished highly selective functionalization of primary carbon-hydrogen bonds and highly enantioselective functionalization of secondary carbon-hydrogen bonds of saturated hydrocarbons with practical interest through metal-catalysed carbenoid insertion to unactivated carbon-hydrogen bonds; he first directly observed nitrido coupling reaction of metal-nitrido complexes, a microscopic reverse of dinitrogen cleavage reaction. Che has made original contributions to the development of inorganic medicines by combining coordination chemistry, proteomics, and molecular biology. His team has developed physiological stable gold(III) compounds which are highly potent and which can be used for treatment of terminal cancers where there is no therapy available and the efficacy of these anti-cancer gold(III) complexes have been confirmed by extensive *in vivo* animal studies and mode of anti-cancer mechanism has been elucidated by combination of proteomics, cDNA array, biochemistry and molecular docking experiments.