Honorary Fellow
A Citation

Professor Thomas Chung Wai Mak, BSc (Hon), PhD

During the 1950's, the economy of Hong Kong underwent a major metamorphosis, and competition in every quarter became increasingly keen day by day. A young student in Hong Kong, in order to pursue his chosen area of academic interest, declined a handsome scholarship offered by the local university and went abroad to seek higher education in a foreign land, earning his doctorate degree in six years. Later he returned home to dedicate himself to tertiary education in Hong Kong, working as an academic for over four decades. He has published prolifically and his disciples, all over the intellectual world, are now distinguished by their numbers as well as standing. This is a glorious success story that is built entirely upon the indefatigable efforts of one person. This epitomizes the outstanding career of Professor Thomas Chung Wai Mak, in which we find the manifestation of the noble humanistic spirit of one abundantly paying back to the city that has bred and nurtured him.

In his student days, what really dominated Professor Mak's research interest were molecular geometry and crystal structure. He received his Bachelor of Science degree with first class honours in 1960 at the University of British Columbia, Canada, where he majored in physics and chemistry, and this was followed by a Doctor of Philosophy in 1963. The emphasis of his research, which he has pursued with utmost zeal, has always centred around chemical crystallography. Generally speaking, most compounds can be obtained in pure crystalline form. The term "crystal structure" refers to the internal structure of a crystalline solid, in which its component parts, including the atoms, ions and molecules, are arranged in an ordered periodic pattern in three-dimensional space. The physical and chemical properties of a compound in the solid state are determined by its crystal structure. The young Thomas Mak, with his singularly acute instinct, recognized early in his career that the use of X-ray diffraction to determine crystal structure would be of lasting importance in the frontier areas of chemical research. He was privileged to have studied under eminent teachers, which further strengthened his development and brought his own research ideas into more refined focus. Upon graduation he became a National Aeronautics and Space Administration research associate at the Department of Crystallography, the University of Pittsburgh, and after that he took up an assistant professorship at the University of Western Ontario, Canada. In 1969 he accepted an invitation from New Asia College, The Chinese University of Hong Kong, and returned home to become a lecturer in Chemistry. Over a period of several decades Professor Mak has devoted himself to research in his laboratory. He has published close to a thousand papers, three books and nine reviews on specialist topics.

The main bulk of Professor Mak's scientific research has borne fruit in systematizing the structural chemistry of compounds. On many occasions he elucidated the host-guest relationship and interaction among molecules. His years of systematic research has laid the foundation for the study of supramolecular structural chemistry, and provided the crystal

engineering of organic compounds and metal coordination networks with important design concepts, methods of practice, and actual examples. In 1999 he was the first to propose the complementary concept of the highest ligation number of a polyatomic anion, and later, in the analysis of nanosized polynuclear metal cluster compounds, he discovered the potential catalytic and non-linear optical properties inherent in them.

The success of Professor Mak as a research scientist has brought him much recognition and an international reputation. In 2001, he was elected a member of The Chinese Academy of Sciences. The academic achievements and learned publications of Professor Thomas Mak have had extensive influence among scholars in his field. The books *Crystallography in Modern Chemistry* and *Advanced Structural Inorganic Chemistry*, both of which Professor Mak was the principal author, have gone through several runs of the press, and hailed as precious gems among reference works in structural chemistry, both for the breadth of their coverage and the depth of the discussion.

While he pursued his higher education overseas, the heart and the passion of Thomas Mak were always with his own country. He has always been keenly aware that the future development of the Chinese race is anchored to the strengthening of its people in the basics, and that all depends on how human resources of the nation are to be educated. Thus he chose a teaching career back home in Hong Kong, on the one hand dedicating himself to the education of local talents, and on the other devoting his efforts to the promotion of academic exchanges between the mainland and Hong Kong. He has worked hard to bring young mainland scholars to Hong Kong for studies and research, and senior academics there to conferences and seminars in our city, giving them the opportunity to present reports and papers, and to facilitate their interflow with the learned world at large. In the 1980's, the Chemistry Department of the Chinese University was the first to admit master's degree graduates from the mainland for further studies and, up to now, close to a hundred doctorates have been achieved through this scheme. Such achievements are certainly something to be proud of, and they bear witness to the foresight and untiring efforts of Professor Mak. It is said that stern teachers make for quality students, and in Professor Mak's case, he imposes discipline on his students just as he imposes it on himself. He demands that, in each draft manuscript submitted to him, there are the personal views and opinions of its author, and that, in every laboratory project under his supervision, there is discovery. Whether in the composition of a paper or in the argument of its thesis, international standards must be observed. The 18 doctoral students who studied under Professor Mak's tutelage are now occupying key positions in various universities and research institutions in Hong Kong and the mainland. His first MSc student rose to the position of Government Chemist, being the Head of the Hong Kong Government Laboratory. His first doctoral student from the mainland was elected to The Chinese Academy of Sciences in 2009.

Professor Mak's illustrious career in teaching and research at The Chinese University of Hong Kong began in 1969. He was elevated to the rank of Professor of Chemistry in 1982. He was successively the chairman of the Chemistry Department, the dean of Science, and the

director of the Institute of Science and Technology. In 2002 he retired, and subsequently took up the Wei Lun Research Professorship of Chemistry, which is the highest recognition that the Chinese University bestows on outstanding scholars. As it is said in the *I Ching*, "Just as the celestial bodies never run out of energy to orbit round and round, so should we always strive to better ourselves." Professor Mak has retired but he does not rest: he still sees research as his major cause, and the Chinese University as his home. Apart from continuous diligent work in the laboratory, he participates enthusiastically in the activities and events at New Asia College, setting a fine example for his young colleagues. Professor Mak is happily married and he and Mrs. Mak have one son and two daughters, who have all distinguished themselves in the careers they pursue and are all working in Hong Kong after completing their university education abroad. Their elder daughter is now teaching at the Music Department of the Chinese University. Such is the family's dedication to education work, with the father a scientist and the daughter in the humanities, much to the admiration and praise of all in academe.

To quote from the *I Ching* again, "An upright person is modest, and even when he crosses a broad river, his predicament is blessed." Professor Mak has, throughout his academic career, been the paradigm of modesty and sincerity. Whether it is in the microscopic analysis of the crystal lattice, or regarding the broad perspective of humanistic concerns, he has never failed to be fair and just, and is always unsparing of his efforts. He teaches not only in words, but also through his own exemplary activities. Mr. Chairman, may I now present Professor Thomas Chung Wai Mak a fine model figure for all scholars, for the award of an Honorary Fellowship of the University.