16/12/2005

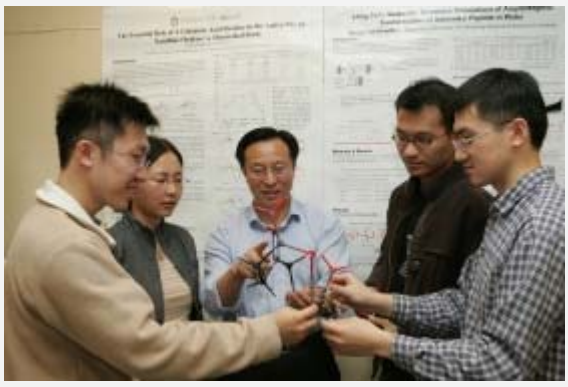
Yun-Dong Wu Honored as CAS Academician

Yun-Dong Wu, Professor of Chemistry at the Hong Kong University of Science and Technology (HKUST), has been elected an Academician of the prestigious Chinese Academy of Sciences (CAS).

Prof Wu is a leading expert in computational organic chemistry. His research interests range from organic chemistry and biochemistry to materials science and drug design, and his work has made significant contributions to the design of catalysts and drug development for diseases such as Alzheimer's and AIDS.

Commenting on the honor, Prof Wu said: "I'm certainly very happy with the honor. I would like to thank the government and HKUST for sponsoring my research and my many colleagues for their fraternal support. I must also say that I feel particularly lucky. Many colleagues at HKUST and other local tertiary institutions are also outstanding and equally deserving scientists and I hope that they will also have the chance to receive the honor."

Prof Wu's research focuses on three main areas: asymmetric catalysis; secondary and tertiary structures of peptides and proteins and protein-protein interaction; as well as drug design based on natural and non-natural amino acids. He successfully solved the long-debated mechanism of the Sharpless epoxidation reaction, a landmark in asymmetric catalysis, which provides insights into the design of new and efficient catalysts for several important reactions. He also worked with Prof Gong Liu-Zhu from the Chengdu Institute of Organic Chemistry in developing the catalytic asymmetric direct Aldol reaction catalyzed by prolinamide derivatives. This highly acclaimed work has been named the Gong-Wu model.



Prof Wu (center) and his research group

His research group has also made important contributions to the understanding of conformational features of peptides formed by natural and non-natural amino acids. Prof Wu pioneered the theoretical study of the secondary structures of β-peptides, peptides formed by β-amino acids. These peptides are a major focus of research attention because of their potential applications in molecular design and drug development. Prof Wu's group has been working in collaboration with Prof Yang Dan's group at the University of Hong Kong in the development of a novel class of peptides called aminoxy-peptides. Together they have designed and synthesized several types of peptide with special chemical properties, such as specific anion-binding peptides, which are of great interest in drug design.

Prof Wu's group has recently developed a program to systematically study the cause and the factors that can influence peptide/protein aggregations, the cause of many diseases such as Alzheimer's, Bovine Spongiform Encephalopathy (Mad Cow) and Type II diabetes. The findings are of significant value to scientists who are concerned with the challenging problems of amyloid aggregation. Prof Wu's group is also actively involved in understanding how HIV-1 and HCV viruses gain entry into the human cell, a crucial factor in the development of drugs to treat HIV-1/AIDS and HCV infections.

The 48-year-old scientist received his BS in Chemistry from Lanzhou University in 1982, and his PhD in Theoretical Organic Chemistry in 1986 from the University of Pittsburgh, US. He then continued his research at UCLA and the University of Erlangen, Germany, before joining HKUST in 1992. He was promoted to full professor in 2001. He is a Guest Professor at Peking University, Nanjing University, Shanghai Institute of Organic Chemistry, and at Lanzhou University, among others.

Since joining HKUST, Prof Wu has published more than 80 papers in top chemistry journals. His work was recognized by the State Natural Science Award in 1999 and the Croucher Senior Research Fellowship in 2000. He was granted the Outstanding Young Investigator Award by the National Natural Science Foundation of China in 2002. He has been a board member of the World Association of Theoretical and Computational Chemists since 1999, and has served on the editorial/advisory boards of a number of science journals.