

**Harnessing of Excited States through Molecular Design and Supramolecular Assembly -
Versatile Metal-Ligand Chromophores and Emitters for Efficient Optoelectronic Functions**

Vivian W.W. Yam

Institute of Molecular Functional Materials and Department of Chemistry,

The University of Hong Kong, Hong Kong SAR

Email: wwyam@hku.hk

Recent works in our laboratory have shown that novel classes of light-absorbing and luminescent metal-containing molecular materials could be assembled through the use of various discrete metal-ligand chromophoric motifs. In this presentation, various strategies for the design and synthesis of new classes of chromophoric and luminescent metal complexes will be described. These simple discrete metal complexes can undergo supramolecular assembly to give a variety of nanostructures and morphologies. Manipulation of the microenvironment, electronic effects, molecular conformation, orientation and assembly has led to the control of the morphologies, nanostructures, and electronic absorption and emission properties in novel functional materials and soft materials. The exploration into the potential applications and functions of these metal-ligand chromophores and luminophores as efficient light-emitting materials, molecular optoelectronics and memories will be described.