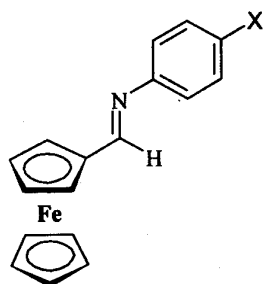


Resonance Raman spectroscopic investigation of MLCT character in Schiff base ferrocenyl complexes

B ABRAHAM, B KARTHIKEYAN, SUSHANTA K PAL,
A G SAMUELSON and S UMAPATHY

Department of Inorganic and Physical Chemistry, Indian Institute of Science,
Bangalore 560 012, India

Resonance Raman spectroscopy, because of its utility in understanding resonant state dynamics and structure, is an ideal tool to investigate MLCT states of inorganic complexes. In particular, the tunability of the excitation wavelength and thus the resulting resonance Raman intensities provide information on the nuclear displacements of vibrational modes that are Franck–Condon active in the resonant state. In this preliminary report, we present the recent results on the investigation of MLCT character of series of Schiff base complexes (see figure) with substituents of varying electron-withdrawing ability. The wavelength-dependent resonance Raman response has been observed and characterized with a view to understand the nature of MLCT states due to the presence of these substituents. This aspect is of considerable interest since the extent of charge transfer on MLCT excitation has direct correlation to its photochemical properties and nonlinear optical response.



X = OCH₃ (1a), H (1b), Cl (1c), NO₂ (1d)