

PHOTOPHYSICAL STUDIES OF METAL ORGANIC FRAMEWORK ENCAPSULATED PHOTOCATALYSTS. Randy W. Larsen, Lukasz Wojtas, Ronald Musselman. Department of Chemistry, University of South Florida, Tampa, Florida, 33620.

The ability to encapsulate photo-active guest molecules within the nanopores of metal organic framework materials (MOFs) affords an outstanding opportunity to exploit the tunable functional properties of the MOF including selective molecular entry into the MOF cavities and internal sorption properties to develop novel photo-catalytic materials. Here we present photophysical studies of Guest-MOF systems containing either Ru(II)tris(2,2' bipyridine) or Zn(II) tetrakis(N-methylpyridyl) porphyrin encapsulated within Zn-polyhedral MOFs. In both cases, the results demonstrate that ability of the MOF framework to fine tune the photophysical properties of the guest molecules. In the case of the Ru(II)tris(2,2'bipyridine) materials, confinement in cavities with restricted space results in an increase in the non-radiative  $^3dd$  excited state thus increasing the observed lifetime of the  $^3MLCT$  excited state. For the Zn(II)-porphyrin system, confinement effects the porphyrin peripheral groups giving rise to triplet state perturbations.