

**Synthesis and characterization of a tris(2-hydroxyphenyl)methane-based cryptand and its Fe<sup>II</sup>, Fe<sup>III</sup>, and Ni<sup>II</sup> complexes** Gary L. Guillet, Forrest T. Sloane, Matthieu F. Dumont, Khalil A. Abboud, Leslie J. Murray, Department of Chemistry, University of Florida, Gainesville, FL 32611

Reaction of tris(5-amino-2-ethoxy-3-isopropylphenyl)methane and pyridine-2,6-dicarbonyl dichloride affords a multidentate cryptand in 48% yield. This macrobicycle preorganizes a central cavity lined by the three N<sub>3</sub>-chelates. Deprotonation followed by addition of a metal precursor affords the desired trimetallic complexes as confirmed by single-crystal X-ray diffraction, mass spectrometry and elemental analysis. From the molecular structure of the triiron(III) and trinickel(II) complexes, the metal centers line the periphery of the cavity with each metal adopting either a distorted square pyramidal or square planar geometry, with the coordination sphere completed either by solvent or chloride donors. We have explored O-atom transfer from iodosobenzene to organic substrates (e.g., triphenylphosphine) mediated by the triiron(III) complex as well as the activation of acetonitrile by the trinickel(II) species. The role of preorganization of the metal centers and the confined reaction volume on the observed reactivity will be presented.