The development of magnetic resonance (MR) or optical imaging agents that respond to tissue variations in pH and metabolite concentrations is an important goal. Toward this goal, we have developed lanthanide complexes (Ce(III), Nd(III), Eu(III) and Yb(III)) that function as MRI contrast agents through paramagnetic chemical exchange saturation transfer (PARCEST).

The PARCEST properties of these complexes are responsive to pH and to small molecule metabolites including carbonate, phosphate and phosphate esters. Interaction of these small molecules modulates CEST either through the formation of innersphere or outersphere complexes as shown by direct excitation lanthanide luminescence spectroscopy. These lanthanide complexes show potential as dual optical probes through ratiometric luminescence imaging. Lanthanide complexes tethered or bound to DNA will be presented as a means to increase the sensitivity and sensing properties of PARCEST agents.

**Tuesday, October 6th, 2009 at 4:15 p.m. in Stowell Hall Room 211**

*Light refreshments will be served! All are welcome!*