



St. Olaf College *Chemistry Department*

Thursday, October 8, 2009

Regents Hall 150

*3:15 p.m. with refreshments
before the seminar*

Thomas D. Varberg
Professor of Chemistry
Macalester College



Electronic Spectroscopy of Transition Metal-Containing Diatomic Molecules

Our research group has been engaged in the last several years in the electronic spectroscopy of gaseous, transition metal-containing diatomic molecules. These free radical species are of interest to chemists and physicists for several reasons. The open-shell metal atoms have unpaired electrons, leading to high spin states, challenging spectra, and complicated Hamiltonians for both experimental spectroscopists and computational chemists. These molecules are also relevant to astronomy and as zero-order models for metal-ligand interactions. I will present recent research results on the spectroscopy of the molecules ReO, TaO and AuF, with particular emphasis on analyzing the interesting (and chemically illuminating) hyperfine structure of these molecules.

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