

## **Undergraduate Research Opportunities in the Group of Professor Terry A. Miller**

Professor Miller's research group has one or two research positions open for undergraduates with an interest in physical chemistry and a strong mathematical background. The group's research focuses on the spectroscopic detection and characterization of reactive chemical intermediates of importance in atmospheric and combustion chemistry. This work will focus on analysis of the spectra of these molecules, typically free radicals and often relatively small and of high symmetry, with emphasis on the utilization of quantum chemistry calculations. These analyses will involve understanding and calculating the extent of various interactions affecting the spectral structure typical of open-shell, free radical spectra, such as the breakdown of the Born-Oppenheimer approximation, vibronic coupling, conical interactions, and the Jahn-Teller effect.

Research support is provided by a Dreyfus Foundation grant entitled, "Experimental and Theoretical Research for Undergraduates Involving the Spectroscopy of Reactive Chemical Intermediates." This funding is normally reserved for the summer, but class credit, e.g. CHEM 4998H, can be earned during the academic year. This program has been on-going for 3 years and the last two undergraduates involved each made research presentations at more than one international meeting, prepared a senior thesis, and are now working for their Ph.D.'s in Chemistry at M.I.T. and UC, Berkeley, respectively.

Interested students should email Professor Miller ([miller.104@osu.edu](mailto:miller.104@osu.edu)) and include a brief summary of their relevant experience, including class work. The plan would be for the selected students to enroll in undergraduate research for spring semester and then have a research position funded for the summer.