



Announcement

of the Georgia Section of the American Chemical Society

Georgia Section May Meeting

TUESDAY MAY 12, 6:30 pm

Testing the Limits of Astrochemistry:

Integrative Studies in Laboratory Spectroscopy, Observational Astronomy, and Chemical Modeling

Susanna Widicus Weaver, Department of Chemistry and Biochemistry
Emory University

It is now thought that meteorite and comet impacts delivered water and biological material to the early Earth, seeding the formation of life. Fundamental biological molecules such as amino acids and sugars have been discovered in meteorites, but none of these species have yet been detected in the interstellar medium (ISM). The mechanisms and environments leading to the formation of biologically-relevant molecules therefore remain unclear. While both the number of detected interstellar molecules and their chemical complexity continue to increase, our understanding of the processes leading to their formation is severely lacking. Only interdisciplinary studies with contributions from laboratory spectroscopy, observational astronomy, and chemical modeling will enable us to elucidate the dominant chemical mechanisms in space. In this talk, I will discuss my plans for a research program that fully integrates these three fields of study. In the laboratory, we are developing new high-sensitivity spectral techniques for the terahertz (THz) frequency range. We are combining these techniques with novel production mechanisms to study transient molecules that are key to prebiotic chemical pathways in the ISM. We will use the spectroscopic results as a guide to search for these molecules in space. From these astronomical observations, we can determine the abundance, temperature, and spatial distribution of these species in interstellar clouds. We will then incorporate this information into interstellar chemical models and test the influence of varying physical conditions. The revised models can be used to predict other important chemical pathways, guiding future laboratory and observational studies. Such studies will enable us to pinpoint the interstellar chemical pathways leading to biological molecules and offer clues to the processes leading to the formation of life.

Dr. Widicus Weaver received her B.S. in Chemistry from Illinois Wesleyan University in 2000 and her Ph.D. in Chemistry from the California Institute of Technology in 2005. She was then a postdoctoral scholar in the departments of Chemistry and Astronomy at the University of Illinois at Urbana-Champaign. She joined the faculty at Emory in June, 2008.

Tuesday, May 12th, 2009

Location

Georgia Tech – [Pettit Microelectronics Research Building \(http://www.mirc.gatech.edu/contacts.php\)](http://www.mirc.gatech.edu/contacts.php)
791 Atlantic Drive NW
Atlanta, GA 30332
(404) 894-5100

Menu

Salad: Mixed Field Greens with Citrus Vinaigrette
Entrée: Choice of (served with Roasted Red Bliss Potatoes and Seasonal Vegetables)
Chicken Marsala or
Risotto Balls with Tomato Basil Sauce (vegetarian)
Dessert: Traditional Red Velvet Cake
Iced Tea and Coffee

Schedule of Events

6:30 Meet and mingle
7:00 Dinner buffet
8:00 Meeting and speaker

Cost

\$25 members
\$15 students, teachers, and retirees

**RSVP WITH MENU SELECTION to David Gottfried [david.gottfried@mirc.gatech.edu]
by 5:00 pm on Thursday, May 7th.**

Sponsored by:

