



Newsletter of the
Northeast
Georgia
Section of the
American
Chemical Society



ACS
Chemistry for Life®

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[Monthly Meeting: Tuesday, March 1, 2016](#)

(Location: Buffalo's Café)

UV-Visible Aerosol Spectroscopy: New tools for climate science

Al Fischer
Graduate Student, UGA

Dinner & Social start at 6:00 PM

Each NEGS ACS member and chemistry or chemistry related college student will receive a \$5.00 credit for his/her meal.

A red, multi-pointed starburst graphic with a white outline, containing text about Buffalo's Café.

Buffalo's Café
Beechwood Shopping Center
196 Alps Road - Suite 49
Athens, GA 30606

TALK SYNOPSIS

Aerosols directly affect Earth's climate by scattering and absorbing solar radiation. Although they are ubiquitous in Earth's atmosphere, direct, *in-situ*, wavelength-resolved measurements of aerosol optical properties remain elusive. As a result, the so-called aerosol direct effects are one of the largest uncertainties in predictions of Earth's future climate, and new instrumentation is needed to provide measurements of the scattering and absorption of sunlight by atmospheric particles, especially in the UV. We have developed a “hybrid” UV-visible photoacoustic spectrometer employing lasers and a Hg arc lamp to measure ambient aerosol absorption at points from 300–660 nm and a UV-visible broadband cavity enhanced spectrometer capable of measuring extinction (scattering + absorption) from 365–690 nm. Used in tandem, the instruments will provide measurements of the aerosol single scattering albedo, or the ratio of scattering to extinction, which will ultimately reduce uncertainty in climate models. Designed for field deployment, the instruments are compact and portable, and their design, validation, and applications to ambient aerosols and laboratory-generated soot will be described.

Speakers Biographical Sketch

Al Fisher is currently pursuing a PhD in analytical/atmospheric chemistry and hold a BS in environmental chemistry under Geoff Smith. He is just as comfortable in the field knee-deep in mud as in the lab elbow-deep in a YAG, and ultimately seeks interdisciplinary research opportunities that bridge the gap between instrumental analysis, ecology, and botany. He holds a BS in Environmental Chemistry (2011) from The Evergreen State College, Olympia, WA and worked at Hummingbird Scientific, Lacey, WA as an Engineering Technician from 2011–2012. He created “Lichens of the Evergreen State College”, a website dedicated to lichen study at The Evergreen State College, developed the “Lichen Guide”, an Android app lichen guide to Northwest lichens. (Glossary and corresponding images) and “Visualizing Evergreen's Forest Campus: Barking Dog Creek”, a visualization of a creek on the campus of The Evergreen State College using traditional mapping techniques and ground-based LiDAR.

In Memoriam

It was with deep regret that I learned of the passing of Ruth Waggoner on Feb. 9th, wife of the late William H. Waggoner, former University of Georgia Chemistry Department distinguished faculty member, one of the initiators and founding member of the Northeast Georgia Section of the American Chemical Society and as many of you know, author of the book on the history of the University of Georgia Chemistry Department. He was also an enthusiastic philatelist and was instrumental in re-igniting my interest in stamp collecting.

Maurice Snook
Editor, NEGS NEWS

OUTREACH OPPORTUNITIES

There are several outreach opportunities available to local section members as described below:

Friday, April 1, 2016—Judges need for the Georgia Science & Engineering Fair, The Classic Center, 300 N Thomas Street, downtown Athens, GA. Visit their website at gsef@georgiacenter.uga.edu and click on judges forms.

Want to help elementary students make “Slime”? Help needed for the following elementary school’s Science Nights:

Thursday, Feb. 25, 2016—5-7 PM Malcolm Bridge Rd. Elementary, Oconee County

Tuesday, Mar. 15, 2016—Rocky Branch Elementary, Oconee County

Tuesday, Mar. 29, 2016—Whitehead Rd. Elementary, Clarke County

Tuesday, April 5, 2016—Fowler Drive Elementary, Clarke County

Contact: Maurice_Snook@yahoo.com

Northeast Georgia Regional Science Fair Winners

Awards were presented to 6 exceptional students for their projects entered in the Northeast Georgia Regional Science & Engineering Fair held Friday, Jan. 29, 2016 at Athens Technical College. Each student received a check for \$50 from the Northeast Georgia Section. Those receiving the awards were:

Dylan Papariello and Quinton Green
Cedar Shoals High School
“Microbial fuel cells: a new source of renewable energy”

Ryan Yang and Kevin Guo
Malcolm Bridge Middle School
“Effect of Fat Content on Yogurt”

Ava Peeler
Russell Middle School
“Water is water...or is it?”

Mary Grace Watkins
Faith Christian Academy
“Like A Sponge”

Five of the Award Winners are pictured below.



Maurice Snook presented his chemistry show to several hundred students, parents and mentors at the Regional Science Fair between judging and the awards presentation.



Slowly pouring a dilute solution of HCl down the side of a flask of stirred water made blue with thymolphthalein indicator and base will produce a blue tornado. The white flask turned upside down was used to illustrate the neutralization of ammonia and hydrochloric acid vapors to form an ammonium chloride cloud.



Crushing a liquid nitrogen frozen flower and then tossing the excess liquid nitrogen into the air always is an audience favorite.

During the last decade, Dr. Snook has presented his chemistry show to over 140 elementary schools (3rd, 4th and 5th graders at 50 schools in the Northeast Georgia Area; each school is on a 3-year rotation); 9 Sandy Creek Nature Center Summer Camps; 7 summer area library programs and 6 Northeast Georgia Regional Science Fairs among other venues. An estimated 12,000-15,000 students/teachers/parents have seen the show. Students attending over 60 Science Nights at schools during this period have made over 8,000 slimes and visited Dr. Snook's astronomy exhibit. The support of the Northeast Georgia Section has been instrumental in providing materials for these outreach activities (see above to participate).

Future Meetings

Tuesday March 29th at Buffalo's (speaker TBD)

NORTHEAST GEORGIA LOCAL SECTION OFFICERS

Executive Committee

Chair: Gary Douberly, UGA, douberly@uga.edu, 706-542-3857

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