

The Blue Ridge Chemist

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Lynchburg College hosts the September Meeting

<http://www.acs-vbrs.org>

VIRGINIA BLUE RIDGE SECTION AMERICAN CHEMICAL SOCIETY

665th SECTION MEETING
Hosted by Lynchburg College

Thursday, September 18, 2014

PROGRAM:

6:00-6:30 Social Time, Burton East Room
6:30-7:30 Dinner, Burton East Room
7:30-8:30 Talk, Burton East Room

The social time, dinner, and presentation will all take place in the Burton East Room at Lynchburg College. The speaker will be Dr. Tracy P. Hamilton. His talk is "Zymurgy: The Art and Science of Brewing Beer."

The buffet dinner will be Salad of Baby Spinach w/White Zinfandel Vinaigrette, Fresh Asparagus, Roasted Yukon Potatoes, Dry Aged Strip Loin of Beef, Rosemary Roasted Chicken Breast, French Rolls with Specialty Cakes and Pies for dessert. Cost for the dinner is \$14.00, with students and retired ACS members being half price.

Reservations for the dinner must be made by FRIDAY, SEPTEMBER 12, SIX DAYS before the meeting, by contacting William Lokar (434)544-8631, or by email lokar_w@lynchburg.edu. Or by mail to William Lokar, School of Sciences, Lynchburg College, Lynchburg, VA 24501.



Dr. Tracy P. Hamilton

Department of Chemistry

University of Alabama at Birmingham

Tracy P. Hamilton is a theoretical chemist by profession, with a PhD from the University of Arkansas in 1987 (Peter Pulay) and a post-doc at the University of Georgia (Henry F. Schaefer III). He is currently an associate professor at UAB. Brewing beer is his only outlet for chemical synthesis. He has been brewing since 1997, and is a certified beer judge (www.bjcp.org). Dr. Hamilton is a member of the Birmingham Brewmasters, a groups dedicated to the appreciation of all beer styles, and to brewing them.

Abstract

The presentation will present the history of brewing, followed by how to brew beer step by step. The chemical processes at each step are discussed (in simpler terms than he does for professional chemistry audiences), making connections to various undergraduate topics such as kinetics and organic chemistry. The talk will be capped off by a list of important flavor compounds (both desirable and undesirable) in beer.

In Memorandum James McGrath

BLACKSBURG, Va., May 20, 2014. James McGrath, University Distinguished Professor and Ethyl Corporation Professor of Chemistry in the College of Science at Virginia Tech, died Saturday evening after a long battle with brain cancer. He was 79.



Before arriving at Virginia Tech in 1975, McGrath spent nearly 20 years in industry working for companies such as Goodyear and Union Carbide and, as a consequence, the university's Department of Chemistry became one of the first in the nation to establish polymer chemistry as a sub-discipline.

Working with colleagues such as J.P. Wightman, Tom Ward, Don Baird and Garth Wilkes, their collaboration was rewarded in 1989 when the National Science Foundation established the prestigious Science and Technology Center: High Performance Adhesives and Composites, which McGrath directed from 1989 to 2000.

A passionate educator, McGrath taught eight classes and initiated and developed the organic polymer chemistry, polymer laboratory, and synthesis and reactions of macromolecules courses. In addition he taught four different American Chemical Society short courses at Virginia Tech for more than 25 years as well as three National Science Foundation / ACS / Virginia Tech short courses for undergraduate teachers.

McGrath was selected to be a member in the National Academy of Engineering in 1994. In 1997 he received the first ever Outstanding Alumni Award from the Department of Polymer Science at the University of Akron where he received his master's degree in 1964 and his doctoral degree in 1967.

He received his bachelor's degree from Siena College.

He was named a Fellow by the American Chemical Society in 2009 and has received a number of awards from the society to include the biennial Charles G. Overberger International Prize for Excellence in Polymer Research in 2013; the George S. Whitby Award for Distinguished Teaching and Research in 2009; Award in Polymer Chemistry in 2007 and 2008; Paul J. Flory Polymer Education Award in 2004; and the Award in Applied Polymer Science in 2002.

In 1997, McGrath was honored as the Virginia Scientist of the Year and was selected by the Society for Plastics Engineers for the Plastics Hall of Fame.

“Jim supervised more than 100 graduate students in either chemistry or the MACRO program, and more than 80 postdoctoral scientists—many of whom went on to enjoy illustrious careers in their own right,” said Jim Tanko, professor and chair of the Department of Chemistry. “He was very active in professional service and outreach, and was a giant in the field of polymer chemistry. Jim’s success was our success. In establishing a highly respected and recognized program in polymer chemistry, he elevated the Department of Chemistry as whole to a much higher level. He was a good friend and colleague, a true scholar and gentleman, and he will be sorely missed.”

McGrath authored more than 400 publications and was involved with more than 40 patents to include optical devices formed from thermoplastic materials; method for making polyimide; highly conductive thermoplastic composites for rapid production of fuel cell bipolar plates; and chlorine resistant desalination membranes.

Autumn Colors (from webexhibits.org)

The invigorating colors that deck deciduous trees in the fall are there all year round – it’s just that chlorophyll absorbs light so strongly that less intense colors are masked. Organic pigments such as carotene and quercetin can only be seen when the chlorophyll molecules decay in the fall, and the woodlands turn red, orange, and golden brown.

As the chlorophyll in leaves decays in the autumn, the green color fades and is replaced by the oranges and reds of carotenoids. Similarly, chlorophyll can also be damaged when leaves are cooked. The molecules denature, and the central magnesium atom is replaced by hydrogen ions. This affects the energy levels within the molecule, causing its absorbance spectrum to alter.

Chlorophyll is not a very stable compound. It is broken down in the process of photosynthesis, so it will decompose given bright sunlight and oxygen. To maintain the amount of chlorophyll in their leaves, plants have to synthesize new chlorophyll.

Carotene is a large conjugated molecule ($C_{40}H_{56}$) found in the chloroplasts of many plants. It facilitates photosynthesis by absorbing energy and transferring it to chlorophyll molecules. Being far more stable than chlorophyll, carotene persists when chlorophyll production is stopped by the onset of winter. As the existing chlorophyll breaks down, the subtler yellow colors of the carotene are revealed.

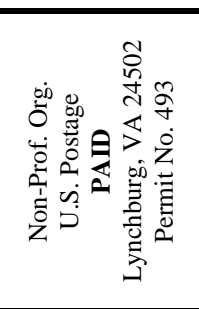
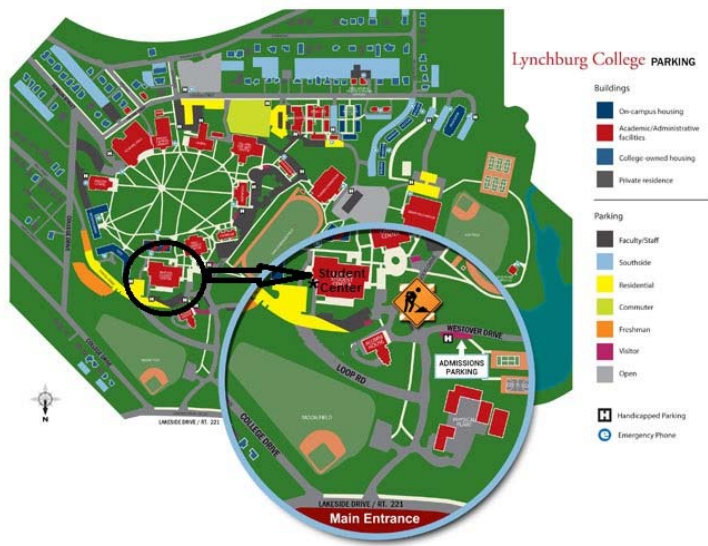
Directions to Lynchburg College

From Roanoke

- Follow Route 460 East from Roanoke
- Exit (left) from 460 at the second Candler's Mountain Rd. exit
- Follow signs to Route 501 North (River Ridge Mall will be on your left, and Wells Fargo Bank will be on your right).
- Take the exit ramp to 501 North. Follow 501 North about 4 miles.
- At the first intersection (marked by a traffic light, Honda Dealer on the left) turn right onto 221 North (Lakeside Drive) and proceed 2 miles.
- The campus entrance will be on your right immediately past College Lake.

The meeting will be in the Drysdale Student Center (circled).
From the main entrance take the loop road on the left and enter on the side of the student center marked by the arrow.

Map of Lynchburg College



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c/o Nancy Richardson, Editor
for VA Blue Ridge Section, American Chemical Soc.
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Liberty University
1971 University Blvd
Lynchburg, VA 24515

Return Service Requested

The October meeting will be at Ferrum College and further details will be announced in the next issue of the Blue Ridge Chemist.