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TRIAD CHEMICAL TIMES

Central North Carolina Section American Chemical Society

September Local Section Meeting

Dr. Gary Van Berkel: **The Open Port Sampling Interface: A Simple and Versatile Concept for Liquid Introduction Atmospheric Pressure Ionization Mass Spectrometry**

When: Tuesday, September 17, 2019
Social: 6:30 pm, Meeting: 7 pm
Where: Syngenta Auditorium, 410 Swing Rd. Greensboro, NC

Upcoming Events

September 17, 2019: Local Section Meeting, Syngenta Auditorium
September 21, 2019: Fall Steam Cleanup, 9 am– noon
October 15, 2019: Local Section Meeting, WSSU
October 20, 2019 NCW Outreach, Guilford College
November TBD: Local Section Meeting, Dr. Mooega Striker, NASA; Mars 2020 Mission, NCA&T
December 5, 2019: Holiday Banquet, Wier Jordan House, Greensboro

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CNC-ACS Officers

Dr. Margaret Kanipes	Chair	mikanipe@ncat.edu
Dr. Rodney Bennett	Chair Elect	rodbennett@aol.com
Dr. John Merle	Treasurer	merlejo@wssu.edu

CNC-ACS Website: **http://www.cnc-acs.sites.acs.org/**

Newsletter Editor: Bill Eberle bill.eberle@syngenta.com

ACS Chemistry for Life®

September Speaker Bio:

Gary J. Van Berkel, Ph.D.
Owner and CSO
Van Berkel Ventures, LLC
Oak Ridge, TN 37830
gjvanberkel@vanberkelventures.com
865-804-3043

Dr. Gary J. Van Berkel is the owner and CSO of Van Berkel Ventures, LLC, an analytical measurement science, innovation, research, consulting and writing firm in Oak Ridge, TN. Prior to starting this company early in 2018, Gary was group leader of and distinguished scientist in the Mass Spectrometry and Laser Spectroscopy Group at Oak Ridge National Laboratory (ORNL). He earned his B.A. in Chemistry from Lawrence University (Appleton, WI) and his Ph.D. in Analytical Chemistry from Washington State University (Pullman, WA). His graduate school work focused on trace metal quantitation (using neutron activation analysis) and metal speciation in fossil fuels and source rocks (using mass spectrometry) in relation to the fundamentals of petroleum formation and source rock□oil field correlations for enhanced oil prospecting. From this work sprang his interest in developing mass spectrometry based detection and characterization methods for geoporphyrins and ultimately to his focus on ionization sources for mass spectrometry. His most notable work in the 1990's led to an elucidation of the electrochemical aspects of electrospray ionization for which he was awarded the 2005 Biemann Medal by the American Society for Mass Spectrometry. His fundamental mass spectrometry research focuses on atmospheric pressure ion sources and on the novel configuration and application of these ion sources to solve analytical problems. Most recently he has been investigating and developing atmospheric pressure surface sampling/ionization instrumental techniques and methods for high throughput analysis and chemical imaging with mass spectrometry. His research at ORNL involved numerous post□doctoral associates and graduates students in addition to staff scientists.

Dr. Van Berkel has published more than 170 refereed journal papers that have been cited more than 11500 times (Google Scholar h index = 58) and presented over 100 invited or contributed talks at scientific meetings, universities, or industries. He also has been awarded 30 patents a large fraction of which have been licensed to industry and productized. He and other members of his group were awarded a 2017 FLC Excellence in Technology Transfer Award - "SCIEX License of ORNL's Open Port Sampling Interfaces for Mass Spectrometry", a 2017 R&D 100 Award, "dropletProbe for Mass Spectrometry", a 2016 R&D 100 Award, "Open Port Sampling Interfaces for Mass Spectrometry" (a product now offered by Advion on their CMS mass spectrometers), and the 2015 Analytical & Bioanalytical Chemistry - Best Paper Award. He was named the 2014 UT-Battelle Distinguished Inventor and won the 2013 ORNL Inventor of the Year and ORNL Director's Award (Scientist of the Year). He and his group also won the 2013 Beynon Prize for their publication "Combining transmission geometry laser ablation and a noncontact continuous flow surface sampling probe/electrospray emitter for mass spectrometry based chemical imaging" (Rapid Communications Mass Spectrometry 2011, 25, 3735□3740). His "Surface Sampling Probe for Mass Spectrometry" was selected for a 2010, R&D 100 award. This technology is implemented commercially as the Liquid Extraction Surface Analysis (LESA) mode on the Triversa Nanomate Robotic Nanelectrospray System from Advion and as the FlowProbe from Prosolia. In 2003, Dr. Van Berkel won the ORNL award as Science Communicator – "For Educating Public Officials about Technology Pertinent to Homeland Security and Advancing ORNL's Role in Homeland Security".

Speaker Abstract:

The Open Port Sampling Interface: A Simple and Versatile Concept for Liquid Introduction Atmospheric Pressure Ionization Mass Spectrometry

Gary J. Van Berkel, Ph.D.
Owner and CSO
Van Berkel Ventures, LLC
Oak Ridge, TN 37830

For just about 20 years, first with my group at Oak Ridge National laboratory, and now in my own research operation, Van Berkel Ventures, LLC, we have conceived, studied and applied numerous variations of a basic co-axial tube liquid microjunction surface sampling probe (LMJ-SSP) for surface sampling and ionization coupled with mass spectrometry (MS). For the most part, such combined liquid delivery and aspiration probes have been utilized by us and others for direct liquid extraction and analysis of material from surfaces. However, by altering the orientation, dimensions, tube arrangements, and operation modes, this basic sampling probe concept can be optimized for a number of different sampling scenarios including, for example, the sampling of small volume liquid and solid samples, capture of particles and aerosols from laser ablation, and capture of liquid droplets from various droplet dispensing devices. The probes can also be connected to any one of a number of liquid introduction ion sources like electrospray ionization (ESI), atmospheric pressure chemical ionization (APCI), atmospheric pressure photoionization ionization (APPI), and inductively coupled plasma (ICP) ionization or used for fraction collection or for sample instruction for HPLC. These multiple application options and capabilities make these probes a simple and versatile *open port sampling interface (OPSI)* for liquid introduction atmospheric pressure ionization mass spectrometry that will be overviewed in this presentation. Following this overview, a few of the newer uses of the OPSI concept will be discussed in more detail. One application covered will be coupling laser capture microdissection directly with MS for multimodal chemical imaging using an OPSI. Another application covered will be the coupling of acoustic droplet dispensing with MS via an OPSI for extreme high throughput chemical analysis (faster than 1 s per sample analysis speed). The presentation will finish with a look to the future.

Ted Benfrey Receives HIST Award

(reprinted from C&E News, June 10, 2019)

Otto Theodor "Ted" Benfrey, emeritus professor of chemistry and the history of science at Guilford College, is the recipient of the 2019 HIST Award for Outstanding Achievement in the History of Chemistry by the American Chemical Society Division of the History of Chemistry. The award includes a placque and $1500.

Benfrey is a leader in chemical education ant the history of science. He has written 7 books on chemistry and the history of chemistry, 14 monograph chapters on the history of chemistry and 89 articles and reviews on chemistry and the history of science. He is credited with strengthening the chemistry curriculum at Guilford College. He started a program offering evening classes to continuing education students, and he enhanced the college's ties with chemical industry. In 1988, Benfrey took over as editor at the Chemical Heritage Foundation, where he oversaw publication of Chemical Heritage.

Benfrey will receive the award during the call ACS national meeting in San Diego.

Written by Linda Wang

Honoring our 50, 60, and 70 year ACS members

At our September Local Section Meeting, we will be honoring the following individuals:

50 Years:
Dr. Peter Schmid

60 Years:
Dr Astor Herrell
Mr William Templeton
Dr Roy Elmer Smith
Mr John Paul McGready
Mr. J. Thurman Freeze (recently deceased)

70 years
Mr. Milton Heffler

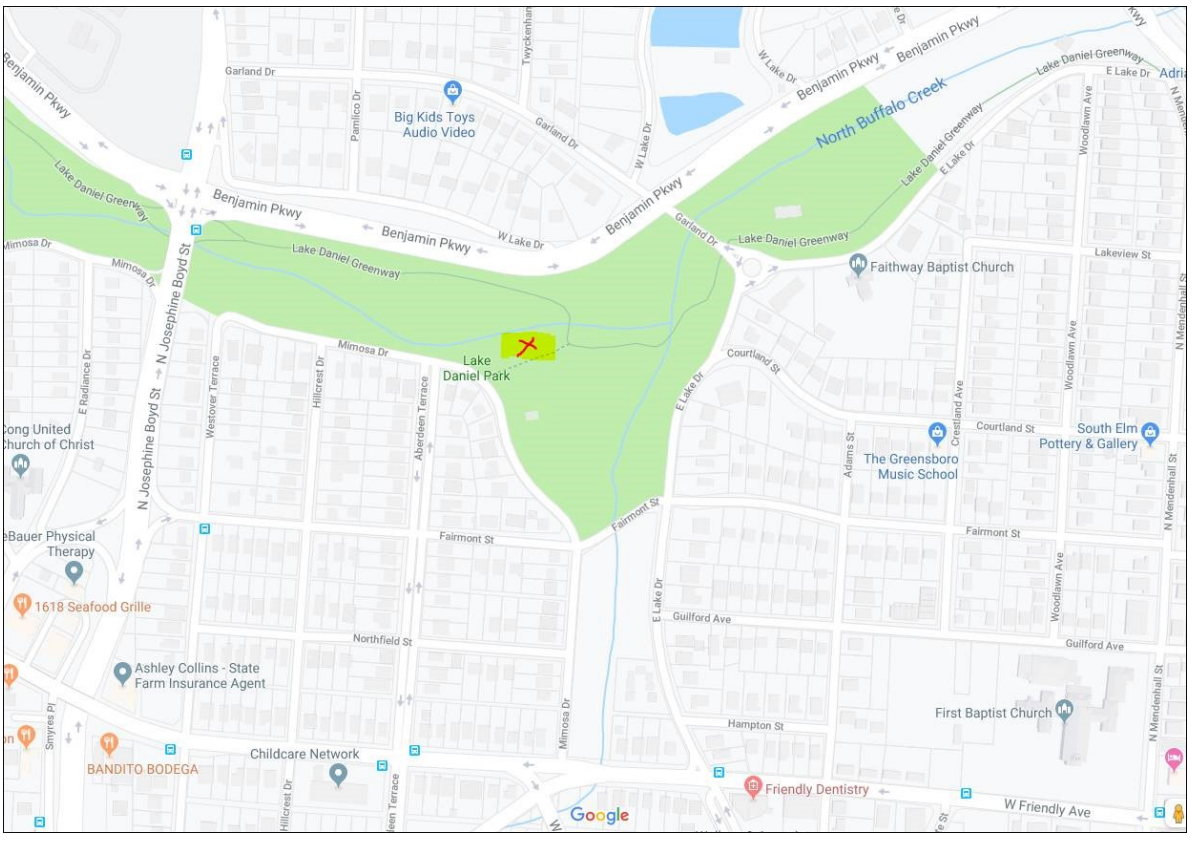
Our

CNC-ACS stream clean will be September 21 from 9 am to noon, rain or shine.

Interested volunteers should contact me via email at tjmayer@carringers.com.

I will provide safety guidelines to review before the cleanup.

We will meet at Lake Daniel park 9 am to distribute bags and assign stream locations (see X below).



Dear ACS Members,

Local Section (LS) elections are upcoming for the Central North Carolina (CNC) Section of the American Chemical Society. The positions include Chair-Elect, Treasurer, and Councilor. If you wish to serve or nominate someone for one of these positions, please notify Dr. Margaret Kanipes at mikanipe@ncat.edu no later than 30 September 2019. Balloting will take place in October (E-Balloting for Councilor).

The duties are summarized as follows:

The Chair-Elect shall be assist the Chair with the direction and management of the Section. In the absence of the Chair, the duties of the office shall devolve upon the Chair-Elect. The Chair-Elect will also serve as the Chair of the Program Committee for the following year and as an ex-officio member of the Awards Committee. The Chair-Elect will serve as Chair of the LS the following year.

The Treasurer shall have charge of the funds of the Section, keep an accurate record of all receipts and disbursements, receive dues, and make those disbursements approved by the Executive Committee. The Treasurer shall render an account of all transactions and of the financial condition of the Section to the Executive Committee at times set by the Committee and shall submit such reports as are required by the Constitution and Bylaws of the SOCIETY. This can be a one or multi-year position.

The Section's Councilor or Alternate Councilor shall attend meetings of the Council of the SOCIETY and represent the Section at such meetings. Councilors are elected for a three-year term. First-year Councilors are seldom appointed to an ACS committee. However, the newly elected Councilor should seriously consider becoming involved in an ACS national committee during the second year to maximize service to the ACS. Strive to serve more than one term as a Councilor and looking out for your constituency. An understanding of the strategic direction of the Society will be vital in this regard.

Here are some practical suggestions to help you quickly become an effective Councilor.
(1) Attend all of your local section and Executive Committee meetings.
(2) Join the Councilor Group via the ACS Network to identify experienced Councilors and (3) Seek to become involved in an ACS national committee.

Further details of the Councilor's duties are shown in the following:
http://www.acs.org/content/acs/en/about/governance/councilors.html

Councilor Statement Robert Yokley

Dear Local Section Membership,

I wish to serve another term as Councilor for the Central North Carolina Section of the ACS. At the local section level (LS), I served as Chair-Elect and Chair (2004-2005) as well as on various LS committees. In addition, I started the very successful CNC-ACS annual Poster/Vendor Night which is now in its 19th year. This event was created to increase interactions between LS members from academia, industry, and government and students and to raise funding to support special guest speakers for each LS September meeting. I also started the very active LS Senior Chemists Group in 2013, and the Former Chair Committee in 2018 (along with Bill Eberle) to serve recently elected Chair-Elects.

In addition to fulfilling my LS duties at national council and caucus meetings, I presently serve on the following national committees:

Committee on Nomenclature, Technology, and Standards Committee (NTS)
Senior Chemists Committee (SCC)

I wrote numerous articles on recycling, aquifers, properties of water, hydropower, chemistry of fudge, etc. for the ACS publication Celebrating Chemistry. This magazine is published twice annually for National Chemistry Week (NCW) and Chemists Celebrate Earth Day (CCED).

Please ask anytime if you have questions about these activities (Ryokley1@triad.rr.com).

I retired from Syngenta. I earned a BS degree in Chemistry and Mathematics at Middle Tennessee State University and a Ph.D. in Chemistry from the University of Tennessee. I live in Kernersville with my wife, Phyllis, and Otis (pug).

Thank you in advance for your support.

Robert A. Yokley

CNC-ACS Executive Committee

Chair	Margaret Kanipes	mikanipe@ncat.edu	336-314-1108
Chair Elect	Rodney Bennett	rodbennett@aol.com	610-805-3482
Treasurer	John Merle	merlejo@wssu.edu	336-750-2237
Councilor ('19)	Robert Yokley	RYokley1@triad.rr.com	336-558-8212
Alternate Councilor ('19)	Ed Robinson	Edwardrobin-son.robinsoner@gmail.com	336-337-3361
Director ('20)	Bill Eberle	bill.eberle@syngenta.com	336-632-7569
Director ('20)	TJ Mayer	tjmayer@carringers.com	336-708-0643

CNC-ACS Committees

Awards	Robert Yokley	RYokley1@triad.rr.com	336-558-8212
Education	Etta Gravely	gravely@ncat.edu	285-2231
Chemistry Olympiad	**OPEN**		
Science Center Advisor	Jerry Walsh	jlwalsh@uncg.edu	336-334-5672
UNCG HS Lab Day	Jerry Walsh	jlwalsh@uncg.edu	336-334-5672
Earth Day	Bill Nell	williamnell@bellsouth.net	764-9322
Government Relations	Ed Robinson	Edwardrobin-son.robinsoner@gmail.com	337-3361
Hospitality	**OPEN**		
Long Range Planning	**OPEN**		
National Chemistry Week	Dennis Ergle	dergleacs@yahoo.com	207-1536
	Cynthia Willard	cynthia.williard@ITGBrands.com	335-6729
Newsletter Editor	Bill Eberle	bill.eberle@syngenta.com	336-632-7569
Poster Vendor Night	Bill Eberle	bill.eberle@syngenta.com	336-632-7569
	Sarah Sihvonen	sksihvonen@gmail.com	336-632-2369
	Mandy Stauffer	amanda.stauffer@syngenta.com	336-632-6175
Professional Relations	**OPEN**		
Public Relations/Publicity	**OPEN**		
Science Advisor – Mark Walker	**OPEN**		
Science Advisor – Richard Burr	Liliana Garcia	llilianagarcia@live.com	
Student Members	**OPEN**		
Senior Chemists	Robert Yokley	RYokley1@triad.rr.com	336-558-8212
Web Page	Beth Williard	elizabeth.williard@syngenta.com	
Women Chemist	Gail Webster	gwebster@guilford.edu	336-316-2486