THE Indicator

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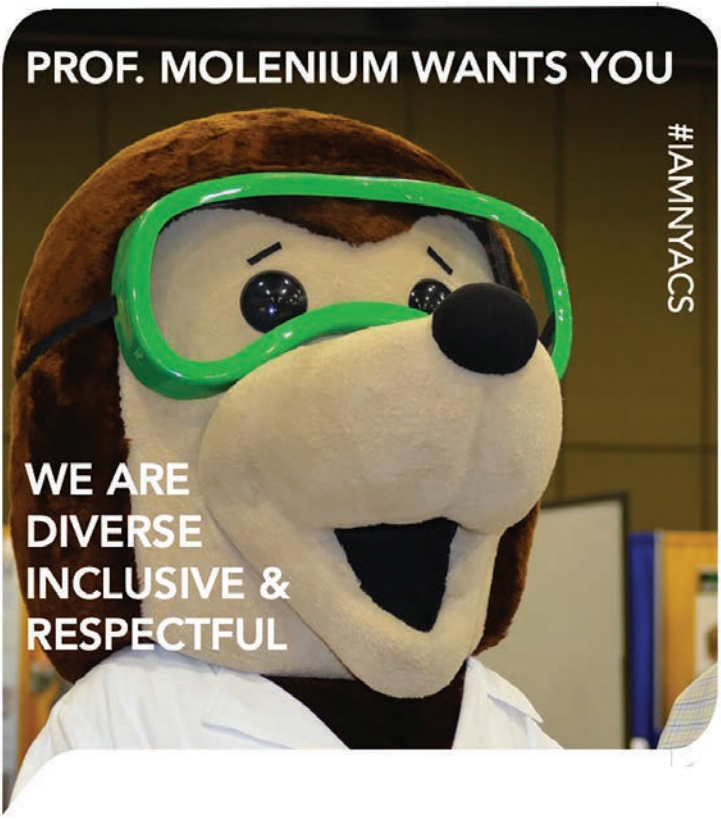
ACS New York Section



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New York

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THIS MONTH IN CHEMICAL HISTORY

Harold Goldwhite, California State University, Los Angeles • **hgoldwh@calstatela.edu**

Jons Jacob Berzelius (1779 – 1848) was a giant of early 19th Century chemistry. He was informally known as the lawgiver of chemistry. To this day we owe so much of the everyday language and ideas of chemistry to this Swedish chemist. He coined such terms as isomer, polymer, catalysis, etc. He turned the awkward quasi-alchemical symbols of even as enlightened a scientist as Dalton into the alphabetical symbols we use today: H, O, N, C, Fe; and so on. He standardized atomic weights. Perhaps even more important than these was his electrochemical view of chemical affinity that gave rise to the terms electronegative and electropositive. I felt I had to include a work by Berzelius among the "Great Books of Chemistry". But which to choose? Berzelius was a prolific writer and his "Textbook of Chemistry", 6 volumes, 1808 – 1830, and written in Swedish, seemed at first the right choice. It was translated into German, French, Dutch, Italian, and Spanish – but not, curiously, into English. Clearly this was a widely read and influential text. But I have rejected that significant work in favor of a series of volumes that marked a new and enormously influential departure in the literature of chemistry.

Beginning in 1822 Berzelius published in Swedish the first of an annual and critical review of new work in chemistry, physics, and mineralogy. It was immediately translated into German and it is by its German title that it is generally known: "Jahres-Bericht uber die Fortschritte der Physicalischen Wissenschaften" or "Jahres-Bericht" for short. In all 27 volumes were published over the period 1822 – 1848 (the year of Berzelius' death). A French version was published but only covered the years 1841 – 1848.

As far as I have been able to ascertain this impressive series of annual critical abstracts was the work of Berzelius alone. He was able to read every important article or book on the physical sciences published in a given year; abstract those he deemed important; write critical reviews of them; and arrange them appropriately for publication. My mind boggles at the thought that Berzelius, having done all this, still had to proof the volumes before they were published. "Chemical Abstracts" pales in contrast to "Jahres-Bericht". Of course the latter was the parent of every scientific abstract publication that followed it.

If you think that "Jahres-Bericht" was Berzelius' full-time job you are mistaken. He wrote books on chemical mineralogy; and animal chemistry (the biochemistry of animal systems). He was a prolific letter-writer – an important way for scientists to communicate in those days when journals were in their infancy. And he was a superb experimental chemist. One of his main objects was to strengthen Dalton's atomic theory by determining precise values of atomic weights. In that process, working on mineral samples, he discovered cerium (as its oxide, ceria) in 1803; selenium in 1817; and thorium in 1828. A little after Davy he isolated, by electrochemistry, potassium and sodium. He used a mercury electrode to prepare amalgams of the alkaline earth metals, and then produced the free metals. For those of us, like myself, who have an interest in forensic science, Berzelius improved the Marsh test for arsenic (a favorite poison of the 19th and perhaps earlier centuries).

As a footnote I want to thank Linda Atkins, editor of this publication, for her support and encouragement. This column owes a great deal to her. I wish her well on her retirement, and I hope that the column will continue "under new management".

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THE Indicator

The monthly newsletter of the New York & North Jersey Sections of the American Chemical Society. Published jointly by the two sections.

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All views expressed are those of the editor and contributors and do not necessarily represent the official position of the New York and North Jersey Sections of the American Chemical Society unless so stated. Distributed electronically to members through the website **tbd**. Non-members are invited to read it online. Members should register their email addresses at **https://www.acs.org/editmyprofile**.

Address advertising correspondence to Advertising Manager. Other correspondence to the Editor.

June Calendar

NEW YORK SECTION

Friday, June 4, 2021
New York Section Board of Directors Meeting
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also

Fridays, September 10, November 19, 2021
New York Section Board of Directors Meeting
See page 6.

NORTH JERSEY SECTION

Monday, June 14, 2021
North Jersey Executive Meeting
See page 5.

also

Mondays, September 27, October 18, November 15, December 13, 2021
North Jersey Executive Meetings
See page 5.

Ad Index

The Indicator **had been posted to the web around the 15th of the previous month at www.TheIndicator.org**

Contributors will be advised of the deadlines for items to be included in the SEPTEMBER 2021 issue when the details are determined.

To Comply With the Federal Regulations Regarding Social Distancing Necessitated by the COVID-19 Virus, it became imperative to cancel, postpone or "go viral" all Section Meetings for the past year and a half.

Details of any relevant meetings will appear in the appropriate future issues of *The Indicator* or subsequent publication.

North Jersey Meetings

https://www.njacs.org

2021 NORTH JERSEY EXECUTIVE COMMITTEE MEETINGS

Section officers, councilors, committee chairs, topical group chairs, and section event organizers meet regularly at the Executive Committee Meetings to discuss topics of importance to running the section and representing the membership. The team is scheduling monthly virtual meetings on Monday evenings at 7 – 9 PM (EST). See below table for the 2021 meeting dates. All ACS members are welcome to attend these meetings and become more involved in section activities. For any additional information, please contact Mirlinda Biba (NJACS 2021 Chair) at **mbiba@njacs.org**.

There are no other Subsection meetings scheduled for March.

2021 ACS North Jersey Local Section Executive Committee

Meetings (virtual) Schedule

Month	Meeting Date Time: 7-9 PM EST (virtual)
June	Monday, June 14, 2021
September	Monday, September 27, 2021
October	Monday, October 18, 2021
November	Monday, November 15, 2021
December	Monday, December 13, 2021

New York Meetings

https://www.newyorkacs.org

ACS, NEW YORK SECTION BOARD OF DIRECTORS

MEETING DATES FOR 2021

The dates for the Board of Directors Meetings of the ACS New York Section for 2021 were selected and approved. The meetings are open to all – everybody is welcome. All non-board members who would like to attend any of the meetings should inform the New York Section office by emailing Bernadette Taylor at **btaylor@NewYorkACS.org** or by calling the Section office at (732) 770-7324.

Dates of the meetings for 2021 are posted on the New York Section website at **https://www.NewYorkACS.org** and monthly in *The Indicator*. Dr. Rita K. Upmacis will chair all meetings. The board meetings will start at exactly 6:30 PM. Until further notice, meetings will be held on-line.

The Board Meeting dates for 2021 are:

Friday, June 4, 2021 Board Meeting
Friday, September 10, 2021 Board Meeting
Friday, November 19, 2021 Board Meeting

#IAMNYACS

Recognizing the achievements and contributions of its members is a core value of the American Chemical Society. In support of this core ACS value, your New York Local Section has launched the **#IAMNYACS** project to highlight the accomplishments of its members in the service of chemistry, fellow members and/or the greater community. We are inviting all members of the New York Local Section to participate so that we can highlight you on our social media channels (Facebook, LinkedIn, twitter) and introduce you to the wider membership.

Participating is simple. Please provide with a photograph and two short phrases to highlight yourself via email (**iamnyacs@newyorkacs.org**). One phrase identifies what you do as a chemist, the other indicates the broader context of your contributions/accomplishments. These will be used to construct an image like the one shown. Please also provide a link to your website / social media or your latest paper that we can incorporate into the social media post to accompany the image.

Thank you for participating, we look forward to receiving your email.

NY ACS Member Affairs Committee
Sharon Lall-Ramnarine, Brian Gibney,
Alison Hyslop, and Joseph Serafin

DR. KRZYSZTOF MATYJASZEWSKI AWARDED THE WILLIAM H. NICHOLS MEDAL FOR 2020

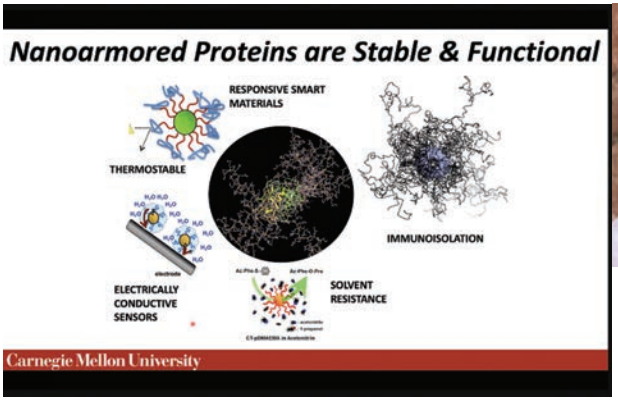
On April 16, Dr. Krzysztof Matyjaszewski of Carnegie Mellon University, received the ACS, New York Section's William H. Nichols Medal Award for 2020 during a virtual medal award ceremony. Dr. Matyjaszewski received the Nichols gold Medal "For Atom Transfer Radical Polymerization (ATRP)." Close to two hundred chemists and guests attended the day's events. Dr. Rita Upmacis, Chair of the New York Section for 2021, superbly organized and conducted the symposium.

The William H. Nichols Distinguished Symposium, that preceded the award ceremony, was titled "Nanostructured Polymers by Molecular Engineering Using ATRP." The attendees enjoyed excellent talks by the following internationally known speakers. Dr. Alan J. Russell, Amgen; Dr. Brent S. Sumerlin, University of Florida; Dr. Jeffrey Pyun, University of Arizona; Dr. David A. Tirrell, California Institute of Technology; and Dr. Matyjaszewski who presented the Award Lecture titled "Macromolecular Engineering by Taming Free Radicals using Atom Transfer Radical Polymerization." Dr. Kathleen Kristian, the Chair-Elect of the New York Section, concluded the symposium and reminded everyone to attend the ceremony that would follow.

Dr. Ruben Savizky, 2020 Chair of the ACS New York Section, welcomed the attendees and recounted the story of Dr. William H. Nichols and the history of the Nichols Medal. The American Chemical Society's President, Dr. H N Cheng, CEO, Thomas Connelly, Director at Large, Dorothy Phillips, and Division 1 Director, Dr. Katherine Lee, brought greetings and congratulations from the members of the ACS. Dr. David A. Tirrell, Dr. Matyjaszewski's colleague and friend, gave a delightful introduction of this year's medalist. Past Chair Savizky then awarded the gold medal, identical bronze medal and an honorarium to Dr. Matyjaszewski. Following the virtual ceremony, the Medalist and speakers happily met with attendees, speakers and guests – to conclude another successful and truly enjoyable Nichols Medal event.

Many members of the Nichols family also enjoyed this special event. The New York Section was honored to have as guests: Mrs. Sandra Nash (great, great granddaughter of Dr. William Nichols), Whitney Nash and Gardner Nash (great, great, great grandchildren of Dr. Nichols). It is exciting and truly a great pleasure to have the Nichols family members present at the presentation of the Nichols Medal as a continuation of the Dr. William H. Nichols legacy.

If you were not able to attend the Nichols or missed one of the presentations, we have included links to the recorded presentations as follows:



Dr. Alan J. Russell, Amgen
Polymer-Enhanced Biomacromolecules

(https://youtu.be/agA-DziWWZs)

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NICHOLS MEDAL

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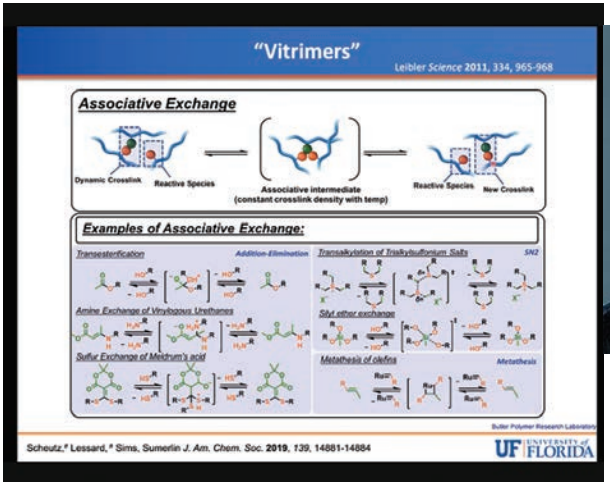
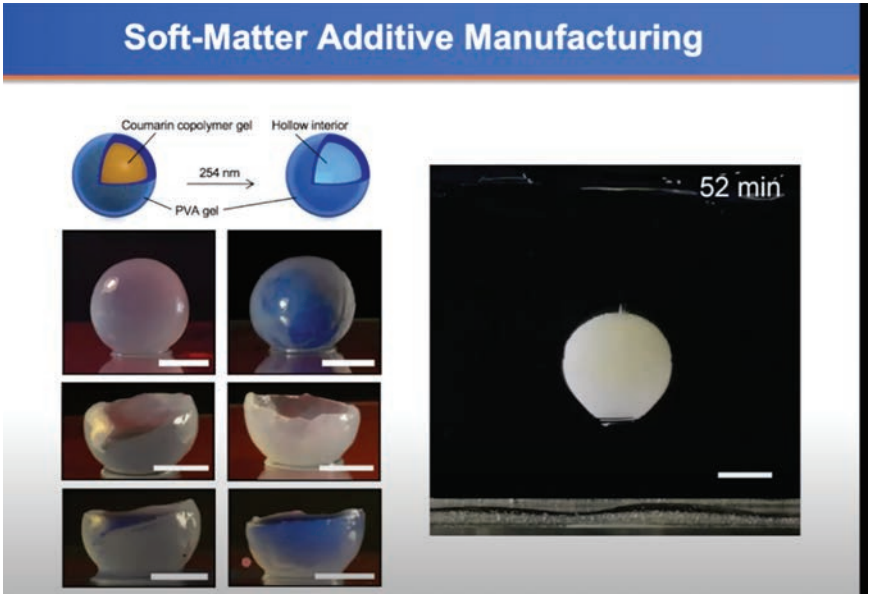


Dr. Brent S. Sumerlin, University of Florida Responsive Materials from Dynamic Bonds

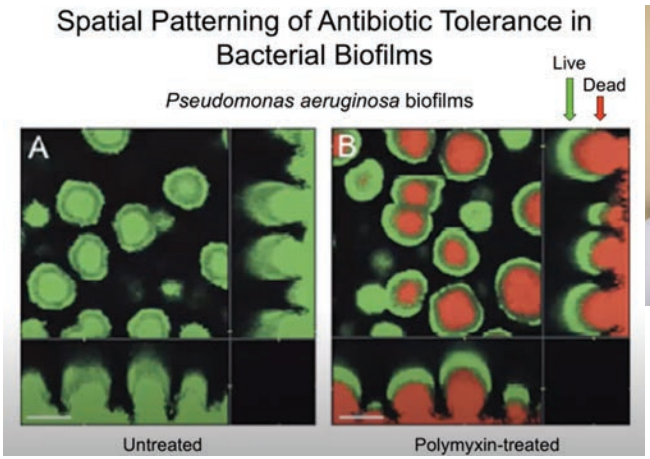
(https://youtu.be/7ZvW35D70iQ);



(continued on page 9)

Dr. Jeffrey Pyun, University of Arizona Dancing in the Dark with CHIPs: Polymers for Next Generation Photonics and Imaging

(https://youtu.be/0qHAau2Ko2Q);



Dr. David A. Tirrell, California Institute of Technology Selective Proteomic Analysis of Cellular Sub-Populations in Complex Biological Systems

(https://youtu.be/9hJFEaim7iQ);

The Nichols Medal Award was established in 1902 by Dr. William H. Nichols to honor a chemical scientist for outstanding original research and was first awarded in 1903. Dr. Nichols, a charter member of the American Chemical Society and its president in 1918 and 1919, maintained a deep commitment to research and development and to the importance of supporting science education and students of chemistry. Since its inception, through an endowment fund, the New York Section administers the award. It has been perpetuated by the generosity of Dr. Nichols, his family and the Nichols Foundation, Inc. The William H. Nichols Medal is the first award in chemistry of the American Chemical Society.

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NICHOLS MEDAL

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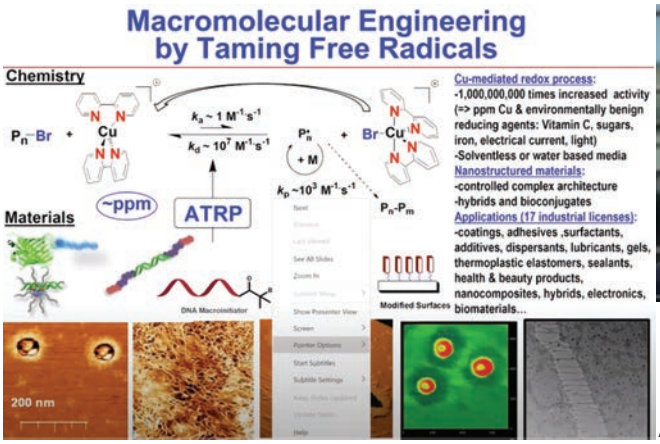
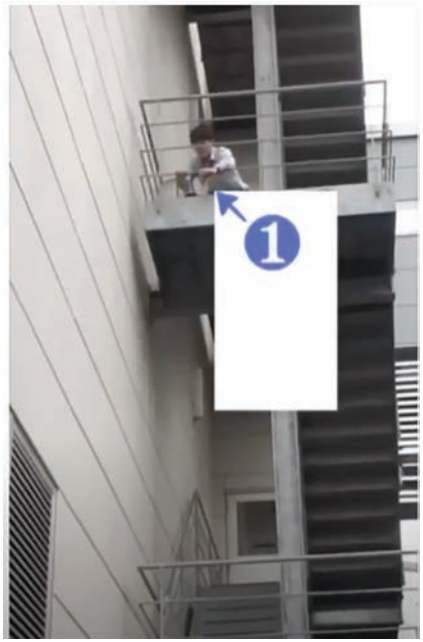


Dr. Matyjaszewski Carnegie Mellon University presented the Award Lecture titled Macromolecular Engineering by Taming Free Radicals using Atom Transfer Radical Polymerization (https://youtu.be/WcUC-BjcuPw)



Dropping an egg from a first floor balcony onto a soft polymeric material that prevents it from breaking.

NEW YORK SECTION AWARDS CERTIFICATES OF EXCELLENCE

Below is a list of college students who were issued certificates of excellence The ACS New York Section invited Chemistry department chairs to send the name of one student who performed outstandingly well in the chemical sciences this academic year. Here is the list of schools, student names, and nominating professors. The list is in the order we received them.

School	Student	Major	Grad.	Nominating Professor
Adelphi University	Jennifer Noorollah	Chemistry	2021	Prof. Brian J. Stockman
Pace University	David Gonzales	Chemistry	2021	Prof. Rita Upmacis
Barnard College	Erika Amemiya	Chemistry	2021	Prof. Rachel Narehood Austin
New York University	Brandon Lu	Biochemistry, BA major	2021	Prof. James Canary
The Cooper Union	Renata Ashapatov	Chemical Engineering	2023	Prof. Andrea Newmark
St. John's University	Phuong Le	Chemistry	2021	Prof. Joseph Serafin
Fordham University	Rachel Daso	Chemistry	2021	Prof. Ipsita Banerjee
College of Mount Saint Vincent	Andrew Sorenson	Biochem.	2021	Prof. Pamela Kerrigan
CUNY - NYC Tech. College	Youshmanie Sukraj	Applied. Chemistry	2021	Prof. Diana Samaroo
Wagner College	Victor Ruan	Chemistry	2021	Prof. Gregory Falabella
Iona College	Tavis Johnson	Chemistry	2021	Prof. Kathleen Kristian
Purchase College SUNY	Shruti Venkatabalakrishnan	Chemistry	2022	Prof. Steve Cooke
Bronx Community College/CUNY	Michael Aidoo	Chemistry	2021	Prof. Neal Phillip
New Jersey City University	Luzangela Martinez	Chemistry	2021	Prof. Robert Aslanian
Queens College - CUNY	Joseph Szpigiel	Chemistry	2021	Prof. Seogjoo J. Jang
Yeshiva College	Joshua Polster	Chemistry	2021	Prof. Raji Viswanathan


Jennifer Noorolla


David Gonzales


Erika Amemiya


Rachel Daso


Tavis Johnson


Brandon Lu


Renata Ashapatov


Phuong H. Le


Luzangela Martinez

WESTCHESTER CHEMICAL SOCIETY

On Wednesday, May 12, 2021, the Westchester Chemical Society (WCS) held, via Zoom, its Distinguished Scientist/Student Awards meeting.

Our Distinguished Scientist 2021 was Mr. George A. Policello, a Research Fellow at Momentive Performance Materials in Tarrytown, NY. The award was for his "Contributions to the Development of Trisiloxane Alkoxylates as Adjuvants for Agriculture".

Mr. Policello had been our choice for Distinguished Scientist 2020 but, because of the Covid-19 Pandemic, that meeting was postponed until this year.

He received a B.S. in Biology from Mercy College, Dobbs Ferry, NY in 1979 and began his career with Union Carbide Corp. (UCC) in Tarrytown, NY in 1980, focused on organosilicone syntheses. He joined Lever Research, Edgewater, NJ, studying interactions between polyether-silicones and conventional wetting agents. He rejoined UCC in 1987, continuing with its successors: Compton Corp., OSi Specialties, GE Silicones and Momentive, responsible for developing silicone surfactants, especially as agricultural adjuvants.

He has contributed to the understanding of the super spreading mechanism associated with these silicone surfactants, specifically trisiloxane alkoxylates as agricultural spray adjuvants, as well as the role of spreading on the uptake and efficacy of agrochemicals on and into foliar surfaces.

He holds more than 45 patents related to silicone surfactants and agricultural applications, and is the author of more than 70 external publications and presentations. Additionally George has been involved with the Silicones Environmental Health and Safety Council (SEHSC), and the Counsel of Producers & Distributors of Agrotechnology (CPDA).

Following his introduction by our co-chair, Paul Dillon, Ph.D., Mr. Policello gave an interesting and informative talk about his work. Questions and answers, via the Zoom chat (hosted by our board member, Sr. Mary Virginia Orna, Ph.D.), followed. Then, our other co-chair, Rolande Hodel, Ph.D., presented George with his award plaque.

WESTCHESTER CHEMICAL SOCIETY

On Wednesday, May 12, 2021, the Westchester Chemical Society (WCS) held, via Zoom, its Distinguished Scientist/Student Awards meeting.

The meeting was opened by our co-chair, Rolande Hodel, Ph.D. She introduced our Education Secretary, Peter Corfield, Ph.D., who made the Student Awards. There were seven awardees from local colleges and two from local high schools. The awardees were:

School	Student	Faculty Member
College of Mount St. Vincent	Diomarys Pichardo	Andrea Minei
Fordham University	Hannah Hunt	Chris Koenigsmann
Iona College	Erienne Peters	Rodney Versace
Manhattanville College	Nathalie Martinez	Darlene Gandolfi
Pace University, Pleasantville, NY	Alexandra Hoy	Karen Caldwell
Purchase College, SUNY	Melanie Pawlak	Steve Cooke
St. Thomas Aquinas College	Jennifer Stevens	Paul Dent
Westchester Community College	John Ryan	Jody Reifenberg
Briarcliff High School	Aman Choudhri	Robert Saar
Ossining High School	Mary Ford	Valerie Holmes and Angelo Piccirillo

Pictures of most of the awardees follow:

Diomarys Pichardo

Hanna Hunt

Erienne Peters

Nathalie Martinez

Melanie Pawlak

Jennifer Stevens

John Ryan

Aman Choudhri

Mary Ford

Call for Nominations

ACS NEW YORK SECTION'S OUTSTANDING SERVICE AWARD FOR 2021

Each year the New York Section presents the Outstanding Service Award to a very deserving member of the section. Many members of the New York Section provide their time, leadership, talent and educational skills to the New York Section. The tradition of excellence of the New York Section is attributable directly to the cumulative effect of these individuals. Please help the New York Section to recognize the efforts of our colleagues by nominating them for this award; **deadline to submit a nomination is June 30th**.

Nominations will be reviewed by a committee consisting of the previous five winners of the award. The Outstanding Service Award for 2021 will be presented at the New York Section's Sectionwide Conference in January 2022.

A Nomination letter with including up to two letters of recommendation per nominee should be emailed to the Office Administrator, Ms. Bernadette Taylor at **btaylor@newyorkacs.org**

For more information about the award along with a list of former award recipients, please visit the ACS New York Section's website:

https://newyorkacs.online/osa/

THE WILLIAMH. NICHOLS MEDAL AWARD FOR 2022

The New York Section is accepting nominations for the William H. Nichols Medal Award for the year 2022. This distinguished award, established in 1902 by Dr. William H. Nichols, for the purpose of encouraging original research in chemistry, is the first award authorized by the American Chemical Society. It is presented annually in recognition of an outstanding contribution in the field of chemistry, and consists of a gold medal, a bronze replica and a cash award. The medals are presented at the William H. Nichols Meeting that consists of a Distinguished Symposium related to the medalist's field of expertise and a Medal Award dinner.

Investigators who have published a significant and original contribution in any field of chemistry during the five calendar years preceding the presentation meeting are eligible for consideration by the Nichols Medal Jury. Each nomination requires a completed Nomination Form, biographical and professional data, and seconding letters. Since the nomination procedure will now utilize the New York Section website, please access the forms and instructions here: **https://newyorkacs.org/documents/Nichols_Nomination_Form.doc**

Nominations must be received by May 31, 2021.

The Nichols Medal Award Jury will meet in June 2021 to select the Nichols Medalist for 2022.

Nominations remain active for a period of five years and additions may be made during that time. After five years, a new nomination is required. The list of previous Nichols Medal recipients can be found on our website: **https://www.newyorkacs.org/nicholsmedalists.html**

Questions regarding the nomination procedure should be directed to **Nichols_medal@newyorkacs.org**

AMERICAN CHEMICAL SOCIETY'S NEW YORK SECTION, INC. — NICHOLS FOUNDATION HIGH SCHOOL CHEMISTRY TEACHER AWARD FOR 2021

The New York Section of the American Chemical Society invites high school principals, science supervisors, and teachers in the greater New York area to nominate a candidate for the 2021 Nichols Foundation Chemistry Teacher Award. The New York Section, through the generosity of the Nichols Foundation, Inc., presents a cash award and an ACS plaque to a teacher who has made an outstanding contribution to chemical education at the high school level. The award will be presented at the ACS, New York Section's Section-wide Conference in early 2022.

NOMINATE A COLLEAGUE – DEADLINE JUNE 15, 2021

Information about the award and nomination details can be found at the New York Section website at:

https://newyorkacs.online/nichols_high_school_teacher/

We invite you to nominate a deserving chemistry teacher by filling in the nomination form at

https://forms.gle/3EYtpdaM3ttn61oZ8

For more information contact:

Stephen Radice
Chair Nichols Award for High School Teaching, **chemone@hotmail.com**

2021 UNDERGRADUATE AND GRADUATE STUDENT AWARDS IN APPLIED SPECTROSCOPY

Society for Applied Spectroscopy, New York/New Jersey Section

The New York/New Jersey Section of the Society for Applied Spectroscopy (NYSAS) is pleased to announce the Undergraduate and Graduate Student Awards program for Academic Year 2020 - 2021. The NYSAS is seeking nominations for its annual Student Awards that recognize excellence in the field of Applied Spectroscopy. The field of Applied Spectroscopy is broadly defined, and includes the use of traditional atomic and molecular spectroscopic techniques as well as the use of spectroscopic detectors in hyphenated instruments, microscopy, imaging and related fields.

One graduate and up to five undergraduate awards will be presented. Each candidate should be an undergraduate in at least their junior year or a graduate student majoring in science or engineering. The graduate awardee will receive a $250 cash award, a plaque and a one-year membership to the SAS. Each undergraduate awardee will receive a $100 cash award, a plaque and a one-year membership to the SAS.

Applications must include the following items:

a) A letter of nomination from the student's research advisor or from an authorized representative of an industrial sponsor of the student's research. (Students are not permitted to self-nominate.)

b) Letters of recommendation from at least one additional faculty member or other scientists who are familiar with the quality of the student's work.

c) Transcripts that document all university credits (unofficial transcripts are acceptable).

d) A one-page summary of the research project written by the student including reference to any of the student's published work, demonstrating applicability of the research to the field of applied spectroscopy.

e) Telephone numbers, addresses and e-mail addresses of both the student & research advisor.

Electronic submission is preferred. Please use the subject line **"NYSAS Award: Last name"**

The deadline for receipt of completed applications is **Friday, May 21, 2021**.

Please email nominations directly to:

Michael Cutrera, NYSAS Student Award Committee email:
miterconsultants@verizon.net

COMMITTEE ON THE HISTORY OF THE NEW YORK SECTION

Over the past twenty-three years the New York Section has participated in the designation of seven National Historic Chemical Landmarks and four New York Section Historic Chemical Landmarks. A brief description of these National and local section landmarks may be found on the NY Section Home Page at **http://newyorkacs.online/history/** under the Committee on the History of the NY Section. These landmark programs recognize achievements in the chemical sciences and related areas, in order to enhance public appreciation for the contributions of the chemical sciences to modern life.

Please consider making a nomination for an historic chemical landmark. The Committee on the History of the NY Section will consider all nominations. In addition to a particular achievement, an historic library, building or association may be worthy of this distinction.

Please send your nomination, with supporting documentation, to the Chair of the Committee, Dr. Neil Jespersen, at **jespersn@stjohns.edu**

Call for Volunteers

OPPORTUNITY FOR ACS MEMBERS TO AID STUDENTS 2 SCIENCE IN A HYBRID VIRTUAL LAB PROGRAM

Can you spare a few hours of your time? Do you like working with students and would you like the opportunity to share your science knowledge in a classroom? Students 2Science (S2S) is seeking volunteers to support its V-Lab program. S2S has a series of elementary, middle, and high school experiments that run in various schools across New Jersey. Members are especially needed to mentor students in participating schools to help with experiments. It's great fun, a wonderful way to give back, and only requires

1-2 hours of your time. Experiments include CO_2 to the Rescue, Curious Crystals, Mystery of M&Ms, Thermochemistry: *Exothermic and Endothermic Chemical Reactions, and Glow it Up: The Chemistry of Luminol.* All are age-appropriate and volunteers are provided with instructions on how to support in the classroom prior to your scheduled volunteer day.

For more information, contact Cyndi Roberson, Director of Corporate Relations, at (973) 947-4880 ext. 516 or visit the website to register for the upcoming school year: **https://www.students2science.org**.

SEMINAR SPEAKERS WANTED

The New York Section of the ACS is in search of speakers that we can add to our Speakers Bureau database of interested local area speakers who are available for Section-wide seminars and symposia. If you have an area of research or interest that would provide an interesting talk appropriate for our Section members, and would like to be included in our Speakers Bureau, please contact the New York Section Office at (732) 770-7324 or send an email to Bernadette Taylor **btaylor@NewYorkACS.org** with the following information that will be posted on the Section's website: your name, affiliation, a title, and 5-6 words briefly summarizing your area of specialty. We look forward to hearing from you about topics that you wish to share with our other members!

Call for Applications

FREDDIE AND ADA BROWN AWARD

This Award recognizes and encourages high achieving middle- and high-school students, of African American and Native American heritage, to further develop their academic skills, with views on careers in the chemical sciences.

Award Amounts

Middle School $100.00 Check and $50.00 gift certificate : High School $200.00 Check and $100.00 gift certificate.

Who is Eligible

Middle School students enrolled in a science class : High School students who have completed a chemistry course

Grades

Middle School B Average or better in Science, B Average overall : High School B Average in Chemistry, B Average overall

Letter of Recommendation

Math or Science/Chemistry Teachers or Guidance Counselor

Statement

Middle School “Why I Like Science” : High School “Why I Like Chemistry”

Selection Criteria

Applicants must be African American (Black) or Native American (including Pacific Islander) or of mixed race.

Transcript

Official transcript required.

Financial Need

Not Required.

Applications available on the web: **www.njacs.org/freddieadabrown** or from your school guidance office.

Return Application To

Freddie and Ada Brown Award, NJACS Section Office, 49 Pippens Way, Morristown, NJ 07960

Due Date

Completed Applications must be postmarked no later than **March 31 Annually**

Questions: Contact Jeannette Brown **Jebrown@infionline.net** or (908) 239-1515

Obituary

Celebrating the Life and Career of Dr. David W. Hopkins, Ph. D.
Beloved Spectroscopist and Friend
Published April 22nd, 2021

David William Hopkins of Battle Creek, Michigan beloved husband, father and grandfather passed away April 5, 2021 at Glenn Arbor. Born in Oak Park, Illinois in 1943, he was preceded in death by his parents Raymond and Muriel Hopkins.

With a bachelor's degree in chemistry and a PhD in biology he became an internationally recognized expert in the use of near infrared light for measuring a variety of substances. He was happily self-employed for 27 years, was a consultant for several start up companies, spent many hours helping fellow scientists analyze their data. He taught classes at national and international conferences, was an enthusiastic supporter of young scientists.

From early childhood he sang with numerous choral groups including First Presbyterian Church Choir and the Battle Creek Community Chorus. He particularly enjoyed singing with the Boy and Men's Choir, the Masters Singers, the Tanglewood Festival Chorus, the Washington Choral Arts Society and the UCSD Madrigal Singers. He will be much missed by the local musical groups.

He was an excellent photographer and collected a wonderful record of numerous camping, canoeing, and Nordic skiing outings. He adored his wife, sons and grandchildren and enjoyed photographing them at family gatherings.

His friends and family will miss his kind and generous nature, his sense of humor, his love of evenings out with fellow singers, his adventurous spirit, his enthusiasm for life.

He is survived by his wife, Sarah (Waldron); sons Stephen (Carrie Stephens); and Douglas (Meghan); grandchildren Beatrix, Archer, Clare and Nora; brother Ronald (Christine), sister Constance, sister-in-law Ellen Richards, and friends of many years, Barb and Scott Myckowiak, John Ourensma, and Matt Davis.

A memorial service for family will be held during the summer.

Donations may be made to The Music Center, First Presbyterian Church Choir, Humane Society or Hospice Care of Southwest Michigan.

The following tributes are from Dave's friends who collectively are mourning the loss of a dear friend. Our goal was to bring these memories of Dave together to celebrate his life and contributions to spectroscopy.

Tribute to a Fine Man

"His colleagues in this meritorious assembly of tributes have described Dave's many contributions to the technology of near-infrared spectroscopy, and his highly-esteemed mentoring skills, so in my tribute to a fine scientist and a fine friend, I will limit my homage to my involvement with him. I probably knew Dave for longer than most of his many colleagues, having met him and worked with him since the first few months that he joined DICKEY-john, in 1978. From the first time that I talked with him I was impressed by his earnest desire to delve into the roots of the technology of NIRS. This came at a time when calibrations were all developed using MLR, although mathematical pre-treatment of spectral data had been pioneered by engineers of the Neotec Corporation, who processed the spectral data of their first instrument using delta log 1/R. That first commercial instrument used only 3 discrete filters, so learning

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the basics was a fairly straight-forward process. The first DICKEY-john instrument used 6 discreet filters, with no spectral data pre-treatment, but MLR was still the method for computing. In those early days Dave showed up at every conference where NIRS surfaced, and I had my first of many lengthy and enjoyable conversations with him at the annual conference of the American Association of Cereal Chemists in San Francisco in 1978. We, of course, talked about applications to wheat, the commodity that led NIRS into the world.

In those times all instruments were filter-driven, and it was not until Neotec introduced their first computerized spectrometer, the Model 6350, at the end of that memorable 1970-1979 decade, and still later, when Harald Martens launched Partial Least Squares regression, at the 1984 IDRC, that there became far more technology for Dave to delve into, which he did with aplomb, and focused on the software of calibration development. Toward the end of his own career, Karl enjoyed working with Dave at the extension of his derivative software. Dave was a prominent figure at every Chambersburg IDRC, and at lunch-times, intermissions, and evening receptions a familiar image was that of Dave's (originally) black beard, head down with one or more young people, opening their world, by adding segments from his mine of knowledge. To them he was always available, always approachable, and always informative. Without Dave, future IDRCs will never be quite the same.

Bless you Dave, you belonged to us all, as we all belonged to you"

By Phil Williams

R.I.P Our Friend, NY/NJ SAS

"It is with heavy hearts that we are celebrating the life and career of our dear friend David Hopkins. David was a loyal friend and devoted member of several spectroscopy societies and most recently was a speaker at the 2020 Gold Medal Award program session at EAS in honor of Howard Mark and Jerome Workman. In 2019 Dave attended EAS and worked in the exhibitor booth of the NY/NJ SAS Regional Section. Dave was a good friend to many spectroscopists around the country and often worked as a consultant teaching and sharing his knowledge with his colleagues at conferences. He had a particularly good skill in being very patient when teaching and choosing his words very carefully so that the audience came away with an excellent understanding of the materials presented. Dave developed a short course on spectra preprocessing techniques which provided a foundation of knowledge for many spectroscopists working in the field today.

He worked closely with many notable spectroscopists including Karl Norris and Phil Williams and was a leader and teacher in the field of Near Infrared spectroscopy. Dave always enjoyed helping young people finding scholarships for attending the Chambersburg meetings.

On March 26th Dave celebrated his 78th birthday with apple pie and ice cream.

Those of us who knew Dave well are mourning the loss of sweet and kind friend and we are truly blessed to have known and worked with him through the years. R.I.P my friend!"

By Deborah Peru, Secretary of NY/NJ SAS

Remembering Dave Hopkins

"Dave Hopkins was a good friend for over 40 years. We first met at one of the early IDRC meetings in Chambersburg while he was still at Kellogg. We had a project together to characterize the aromatic components of bran from grains and compare them to the whole plant aromatics in grain crops and other commodities. We began working with both CNIRS and ICNIRS. Dave and I spent years on award committees and other post for both organizations. Dave started in NIR where I did with filter instruments and no computers or chemometrics to speak of. It was necessary to have the simplest, most robust equation to relate the sample spectra to the desired analytical result. Dave was interested in the way Karl Norris calculated derivatives and was working to bring the software to do it to fruition for all.

It has been a pleasure and honor to work with Dave and to have the opportunity to get together and talk at IDRC, ICNIRS, EAS, SCIX (FACSS) and PITTCON. We had the opportunity to share the podium on numerous occasions (picture). Dave was always the gracious chair and


Dave Hopkins & Franklin E. (Woody) Barton, II

presenter. He was a sincere "people person", a skill that I truly admired. The NIR community is a very collegial family and we have once again lost a valuable part of that family. Like all of us, I will miss Dave and am grateful for the chance to know and work with him for so long."

By Franklin E. (Woody) Barton, II

Career Summary Written for 4th Ed of the NIR Handbook

"Dr. David W. Hopkins was born in Oak Park, Illinois March 26, 1943; graduated from Carleton College in 1965 with a degree in chemistry and from UCSD in 1971 with a PhD in biology. A series of post docs took him to Harvard, the Biology Institute in Freiburg, Germany and the Smithsonian in Rockville, MD. He joined DICKEY-John in 1978 as Lab Supervisor responsible for lab determinations of moisture, protein, fat and fiber, and the determination of NIR calibrations. By producing calibrations for wheat, barley, corn, soybeans and many other food and feed products, he helped make NIR widely used in the food and agricultural sectors. In 1986 he joined Kellogg Co., where he led the NIR Analytical Group, producing calibrations for many finished food and raw materials. In 1992 he formed his own consulting company to bring his experience and expertise to companies engaged in the development and manufacture of NIR equipment and companies wishing to employ NIR technology effectively. He has worked in the Pharmaceutical, Food, Chemical, and Petrochemical sectors. David has published and presented many short courses in NIR Spectroscopy, Chemometrics and the use of chemometric software at international meetings and at diverse corporate sites. He made it his specialty of studying and presenting the effective use of spectral pre-treatments.

He was a dedicated scientist and caring mentor to many students. His friendship and warm personality will be missed."

By Gary Ritchie

My Brother

"I never had a brother. But if I could choose to have a brother, and I could also have my 'druthers, I would want that to be someone like Dave. Except that if I actually had a brother, it's unlikely that he would be technically oriented as well, the way Dave was. Over the years Dave & I became fairly close, considering that we lived 1,000 miles apart. But when Pittcon or EAS rolled around, we both wanted to minimize travel expenses, so we shared a hotel room. Between the hotel and going off to dinner, this gave us lots of hours with nothing to do but talk. And what would we talk about? All kinds of topics, but one big one was Dave's developments of Karl's software. We didn't talk about details of the actual coding, but about the concepts underlying what Dave and Karl were doing. We had the most wonderful arguments, about questions like what was the meaning of a "derivative" in a computer, where you can't fulfill the most basic, fundamental requirement for the definition of a derivative? Or, what is the Savitzky (for which Dave taught me the correct spelling)-Golay algorithm telling us? The arguments went on, literally, for years, because we could argue for a few hours at, say, Pittcon but then we had to stop when the time came for us to go home. So then we would pick up the argument right where we left off, at the next Pittcon or IDRC or even EAS. This could continue for several cycles. That's only one of the things I'll miss Dave for. I'll also miss his warmth and good nature that others also know, but these ongoing arguments are, I think, unique.

Dave also had special relationships with almost everyone in the NIR community. Best-known, of course, is his relationship with Karl Norris, while they worked on updating Karl's software. Second, from my perception, is Phil Williams, whom he took to time and trouble to visit with on his trip through Canada. Third is Fred McClure. Every Pittcon for many years, the two of

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them would arrange one evening, to go to the best restaurant in whichever city Pittcon was in that year, for a very fancy dinner. When I got wind of that tradition, I asked to join them and they graciously included me. That continued for several more years, until Fred retired and stopped coming to Pittcon. Then Dave & I continued the tradition ourselves."

By Dr. Howard Mark

Memory of Dave Hopkins

"I personally knew David Hopkins for almost four decades and have witnessed his many contributions to the theoretical development, practical application, and teaching of spectroscopy—particularly Near Infrared Spectroscopy. I worked with David Hopkins for several years at DICKEY-john Corporation in the late 1970's and early 1980's to bring NIR instrumentation into routine commercial use. David played a leading role in designing and organizing the analytical laboratory to support NIR and other instrumentation, developed the software for a new laboratory spectrocomputer that we jointly assembled, and led the development of calibrations and calibration methods. His "universal" calibrations for several agricultural commodities were some of the first that could be easily transferred from one NIR unit to another and from the spectrocomputer directly to a filterbased instrument. I believe he was the first to recognize some mathematical methods for assessing the potential transferability of calibrations—such as relationship between the sum of the coefficients and the sensitivity to gain shifts. After David moved on to Kellogg, I was not as aware of the details of his work, but I know that he had a prominent role in the successful migration of a major cereal grain user from chemical methods to NIR spectroscopy for routine analysis of incoming raw materials. Since his time at Kellogg, he has consulted for many major NIR instrument suppliers and NIRS users. He has remained engaged in the development of standards through ASTM, participated as professional spectroscopic societies such as SAS and the Council for Near-Infrared Spectroscopy (including a term as president). David has chaired the Awards Committee for the International Diffuse Reflectance Conference (Chambersburg Conference) for many years—organizing the Gerald S. Birth Award selection and student travel award recipients. David has also served as prominent NIRS Short Course provider in many venues over many years—often on a volunteer basis. As such he has contributed greatly to the development of new generations of spectroscopists. Most recently he served as part of a team to teach a two day NIRS short course at the 2016 IDRC. I was able to sit in on most of his presentations; his personal warmth and intellectual generosity was extremely well received by the class of about 25, which included both graduate students and working professionals. His long-term interest in spectral pre-treatments and derivative math recently led him to work with Karl Norris to rewrite Karl's famed "ratio of derivatives" DOS regression program as a set of Matlab files and executable files. He has offered these without charge to the current generation of NIR spectroscopists. His most recent publication in NIR News describes the capabilities of these routines. David Hopkins was a pillar in the NIRS community for several decades."

By David B. Funk, Ph.D., D.Sc.

A Dear Friend

"I am immensely grateful for the privilege of having Dave Hopkins as a close colleague and dear friend for some 25 years. Dave's warm humanity and generous spirit touched everyone who met him, whether in a casual encounter, while collaborating on a project, as a student in one the myriad courses he taught, while serving with him on a committee, or sharing thoughts over an evening beer at a conference. His genuine kindness, profound patience, and his sincere dedication to helping those around him, combined with his outstanding competence in analytical spectroscopy made him one of the best, most effective teachers in the field. Dave was a master of the art and science of preprocessing spectroscopic data to optimize reliable exploitation of the information it contains. Dave brought a disciplined approach to experimental design. His meticulous laboratory technique, his insightful ability to address an application within its full context, and his intense determination to do the best possible job for his many consulting clients enabled him to successfully deliver solid, creative solutions for a wide range of cutting edge analytical applications. Because he worked primarily on industrial projects, Dave was seldom able to publish accounts of his many successes. That is why few people

are aware of his contributions to a considerable number of significant applications. Here, I'll mention just a couple of them. He made major contributions to the development of a cardiac catheterization system which performs hyperspectral physiological imaging of coronary arteries in a beating human heart to provide cardiologists with critical information to guide the placement of stents He was also a key contributor to a system which employs fluorescence spectroscopy to detect extremely low levels of natural carcinogens in agricultural products. While he was generally unable to publish accounts of his accomplishments, he derived tremendous satisfaction from the fact that his work was out in the world benefiting people. Dave was not only a dear friend and colleague. I also regard him as a role model. My efforts to emulate his patience, generosity of spirit, and meticulous approach to his work have surely come up short, but they have just as surely helped me become a better chemometrician, a better teacher, and a better human being. Thank you Dave for your friendship and inspiring collaboration. You left us much too soon."

By Richard Kramer

"David was always one of the good guys and always a true gentleman!

I remember working with him a bit back at the big T, and enjoyed running into him at conferences and trade shows.

Makes you appreciate the time we have a bit more."

By Larry McDermott

"I met David quite some time back when I first became involved in NIR and ran into him, typically at EAS in NJ, once a year. I cannot say we were close friends, but David always made me feel like one. For me, David was that very rare combination of intelligence, approachability and good nature. I genuinely was always glad to spend time with him. I think part of that was David always made you feel that he felt that same way about you".

By Ron Rubinovitz

IDRC Announcement

"Some sad news today - earlier this week we learned that Dave Hopkins passed away after a lengthy battle with cancer. Dave was a longtime CNIRS member and attended IDRC regularly. He gave freely of his time to both CNIRS and IDRC, serving on the board as well as several committees in addition to providing education during IDRC short courses and offering technical presentations. Dave was always a friendly face in the crowd. He will be missed by all. Our condolences go out to his wife Sarah and family.

'Rest in Peace Dave."

By Susan Foulk

"While I knew Dave Hopkins for many years, I regret that I didn't get to work with him more. I was always struck by his gentle, sharing nature. He was quick to volunteer for IDRC work, never failed to share time and experience with newer practitioners of NIR and his chapter in the new Handbook fills a definite need. He will be missed by many professional and personal friends."

By Emil Ciurczak

"Dave was a bright light in a tough world - he was always positive, kind and very insightful. He will be missed."

By Cynthia Kradjel

In Dave's Words

I began my work in the field of NIR Spectroscopy in 1978, when I started to work at DICKEY-john Corp. I heard about the position there from Karl Norris, who suggested that would be a good match for my interests in spectroscopy. In the last year or more, I have written a series of Matlab programs to produce calibrations using Multiple Linear Regression (MLR) with terms composed of the ratios of derivatives at selected pairs of wavelengths (that is, derivative quotient math or DQM). The latest version of the MULR program that was used by Karl for his DQM calibrations was written by William Hruschka in 1998 in Fortran and compiled for use

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under MSDOS. Unfortunately, the DOS programs can no longer be run under Windows 7 and later systems. Karl gave his programs to anyone who was interested, and in the spirit of honoring his work and practice, I am making available for free the Matlab versions, and compiled versions which may be run using the free Matlab Compiler Runtime (MCR) Program. The compiled programs do not require a Matlab license or any knowledge of Matlab. Karl was very excited to use these programs, which were developed to include many of his suggestions, such as the ability to use terms employing numerators and denominators with derivatives of any order up to fourth order. For me it was a great experience to work with him, and an opportunity to repay him in a small way for the mentoring to me and to many other workers in the NIR community. My Resume reveals that I have written very few published papers. This is because I have only worked for two corporations in my career, both of which discouraged publications out of the desire not to disclose information that might aid their competitors or indicate methods they used to produce quality products. As a consultant for most of my career, I have largely been barred from publishing results by non-disclosure agreements. However, I have recently given a number of presentations at international conferences on the results of using the Matlab DQM programs and written a non peer-reviewed article about the use of their use. I hope to write more papers on this method as I use it on more data and others begin to use the programs. It is interesting to note that two of the three papers I published while still in grad school concerned observations we made on the reduction of noise in fourth derivatives calculated on digitized spectra. I have made a specialty of study and use of derivatives and convolution functions for much of my career.

(Written by David Hopkins, 2016)

Phil Williams, Karl Norris & David, 2006

2002

David and Arnold

David and Karl Norris (2006)

(All photos courtesy of Dr. Howard Mark)