

## The SAS Spectrum Newsletter

The Newsletter of the Society for Applied Spectroscopy



### March 2012



## SAS AND YOUR FELLOW SCIENTISTS WILL BE AT PITTCON 2012 IN ORLANDO MARCH 11-15!

SAS is pleased to present two sessions at this year's meeting. Join us for Pulsed Lasers, Non-linear Spectroscopies, and Vibrations: From a Laboratory Curiosity to Practical Applications organized by Bruce Chase, University of Delaware, and Laser Induced Breakdown Spectroscopy (LIBS): A Viable Analytical Tool organized by James A Holcombe, University of Texas at Austin.

Be sure to visit us at booth 2422!

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### Introducing the Agilent Cary 630 FTIR: DISTINCTLY BETTER (AND SMALLER) ROUTINE FTIR

The world's smallest, lightest, most robust benchtop FTIR is here. The NEW Agilent Cary 630 FTIR doesn't compromise on performance or precision. Instead, it proves that big things come in small packages. With 21 CFR compliance, revolutionary sampling accessories for liquid analysis, and permanently aligned optics, [reliable testing is in your hands.](#)

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### In Memoriam: Bernhard Schrader (1931-2012)

The topic of Bernhard Schrader's Ph.D. thesis "Simple set-up for recording Raman spectra of solids" forms the basis of his life's work, which can be summarized:

- Bernhard was a pre-eminent Raman spectroscopist, although this would just represent the central part of his vast research productivity.
- Students need to know that instruments should never be black boxes – what happens inside the box, to the most basic details, is most important.
- Simple experimental arrangements are most appealing and publications should always be "high signal to noise" with little embellishment.

Bernhard worked on his thesis at a time when it was hard to believe that Raman spectroscopy would find applications in routine analysis, even though he showed the potential. Later he ventured to construct a laser to replace the mercury arc as a source, reduced the size of the spectrometer, and discussed the most unusual yet efficient sample optics adapted to specific tasks. For the reticence under which Raman spectroscopy endured (at least until the 1990s), he blamed the unnecessary long 'parallel beams' and eventually contributed to launch NIR-FT Raman spectrometers. At the same time, he worked with other methods of molecular spectroscopy,

particularly with infrared spectroscopy, where he also addressed special techniques such as ATR and rotatory dispersion. In most cases such developments were initiated by the interest in real-world challenges such as the continuous testing of waste water, the analysis of aerosol particles, the demonstration of the cleanliness of re-usable bottles, non-invasive medical diagnosis, non-destructive analysis of plants, and in-field studies.

Born in Quedlinburg, a magnificent small city of great history in the center of Germany, he carried out his studies including his thesis in Berlin with a flock of similarly bright and keen mates who still are good friends of his. He joined the Institute of Spectrochemistry (ISAS) in Dortmund in 1968. Shortly thereafter, he became Professor of Physical Chemistry, Organic Chemistry and eventually Theoretical Chemistry (1976 University of Essen). He spent sabbaticals at Florida State University (Tallahassee, FL), the IBM Research Institute (San Jose, CA), and the Weizmann Institute of Science (Rehovot, Israel). Each time he returned with a pile of ideas for new projects. His versatility is based on his widespread interest in how everything works, and, as a consequence, he liked to teach principles of chemistry to non-chemistry students attracting their interest with generally relevant problems. Bernhard Schrader retired in 1996 even though the term 'retire' is misleading: he converted the cellar of his private house into a laboratory suite with so-called 'old' instruments which nonetheless are at their best performance levels since these are not "black boxes" to Bernhard Schrader. He was not only full of new ideas related to instrumentation and application of Raman spectroscopy and neighboring methods, but also enthusiastic about photographing a solar eclipse, painting picture postcards, etc. He was almost always active and engaged in something, often at night - his famous "siesta" was sacred.

His scientific work approaches 300 papers and several books and even a film visualizing molecular vibrations and illustrating these complex processes. The handbook "Infrared and Raman Spectroscopy" he edited is well accepted and the "Raman/Infrared Atlas of Organic Compounds" has become an indispensable tool to many analytically working spectroscopists. Bernhard Schrader supervised 63 doctoral theses and hosted 5 Humboldt Scholars. As presents for his 70th birthday he asked his students and scientific guests to send a short report on their life after the time with him: in spite of the limitation to one page each, a volume resulted which is comparable to an elaborate thesis reflecting impressively both Bernhard Schrader's scientific influence as well as his personality.

Bernhard Schrader was active for scientific journals such as the Journal of Raman Spectroscopy, Applied Spectroscopy, and the Journal of Molecular Structure. He served on boards such as the IUPAC Commission, EUCMOS, and of professional bodies in Germany. He guided for several periods the juries of the Bunsen-Kirchhoff-Prize and of the Océ-van-der-Grinden Environmental Award. Besides the numerous training courses and national meetings that he organized, he chaired the European Congress on Molecular Spectroscopy in Essen in 1994. He has been honored with distinctions from Bulgaria, Austria, Norway, the Czech Republic, Turkey, and Germany.

A particular concern to Bernhard Schrader was contact to East German and East European colleagues. He took every chance to promote their research, to meet them and to facilitate their traveling. Many of them (and others also) stayed in the Schrader house enjoying not only family accommodation but also the always-friendly care and the inspiring atmosphere created by both Bernhard and his wife Christa.

Bernhard leaves behind his wife Christa, children Prof Dr. Wolfgang Schrader (wife Dr. Betina Gruner-Schrader), Dr. Christine Schrader (husband Dr. Andreas Müller), and Dr. Jochen Schrader (wife Marleine Boueiz) and grandchildren Julian, Johannes, Matthias, Nicolas, Peter, Viola, and Leo.

Memorial contributions can be made to the Deutsche Stiftung Denkmolschutz Stichwort B.Schrader, Dresdner Bank BLZ 370 800 40 Account # 263667004.





## FACSS and ANACHEM announce that Professor Peter R. Griffiths has been named the recipient of the 2012 ANACHEM Award

The Association of Analytical Chemists (ANACHEM) organization and the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) are pleased to announce that Professor Peter R. Griffiths has been selected as the recipient of the **2012 ANACHEM Award**.

Peter Griffiths received his doctorate in physical chemistry at Oxford University and did postdoctoral research at the University of Maryland. He then worked as Product Specialist at Digilab, where the first FT-IR spectrometer of the modern era was developed. He was subsequently appointed as Manager of Analytical Services at Sadtler Research Laboratories in Philadelphia (now the Bio-Rad Informatics Division). He started his academic career at Ohio University where he ultimately achieved the rank of distinguished professor. He then moved to the University of California, Riverside before being appointed chair of the Chemistry Department of the University of Idaho where he is now professor emeritus.

Dr. Griffiths has worked in many different aspects of vibrational spectroscopy since 1964. The research in his laboratory has been largely centered on the application of infrared and Raman spectrometry to the solution of problems of analytical, environmental and structural chemistry. Topics on which he has published extensively include various types of infrared reflection spectroscopy, Raman spectroscopy, chemometrics and data processing, development of instrumentation for infrared spectroscopy (especially FT-IR), hyphenated techniques, open-path atmospheric monitoring and surface-enhanced infrared and Raman spectroscopy. He is the author of over 300 refereed papers and 45 book chapters, and has written or edited 12 books on various aspects of vibrational spectroscopy, including *Fourier Transform Infrared Spectrometry* (two editions) and the five-volume *Handbook of Vibrational Spectrometry*.

He has been very involved in the activities of the Society for Applied Spectroscopy. He was President of the Society in 1994 and was awarded honorary membership of the Society, as well the Distinguished Service Award. He served as Associate Editor of the journal *Applied Spectroscopy* for almost twenty years and took over as Editor-in-Chief in July 2009. He has won a number of awards including the Coblenz award, the Spectroscopy Society of Pittsburgh Award, the Birth Award for near-infrared spectroscopy, the Bomem-Michelson Award, the Prögl medal of the Austrian Society of Analytical Chemistry and the Gold Medal of the New York Section of the SAS. He was awarded an Alexander von Humboldt Research Fellowship that enabled him to spend a year at the Technical University of Dresden and, most recently, an Erskine Fellowship to the University of Canterbury, New Zealand. He directs the week-long summer courses on the interpretation and applications of infrared and Raman spectra that are held annually at Bowdoin College in Brunswick, ME, and occasionally in Sweden.

The ANACHEM award includes an honorarium, an award certificate, a Plenary lecture at the SCIX meeting, and a special session honoring the contributions of the awardee. The Award Plenary lecture will be given at FACSS's SCIX conference, which in 2012 will be held in Kansas City between September 30 - October 4.

Professor Griffiths' Plenary lecture is entitled "The impact of chemometrics on open-path FT-IR atmospheric monitoring". The plenary lecture will be followed by a forward-looking session on vibrational spectroscopy including the following speakers and topics:

Dr. Curt Marcott	What may be the next advances in mid-infrared spectrometry?
Dr. Carol Hirschmugl	What may be the next advances in mid-infrared microspectrometry?
Professor Max Diem	What may be the next advances in biomedical mid-infrared spectrometry?
Professor Boris Mizaikoff	Will tunable lasers have an impact on mid-infrared spectrometry in the next ten years?
Dr. Ian R. Lewis	What may be the next advances in Raman spectrometry?
Professor Mike Blades	What may be the next advances in biomedical Raman spectrometry?

The ANACHEM Award was established in 1953 and is presented annually to an outstanding analytical chemist based on activities in teaching, research, administration or other activity which has advanced the art and science of the field. The Award was presented as a part of the ANACHEM Conference through 1972. After 1972, the ANACHEM Award has been presented at the North American meeting presented by FACSS.

### **About ANACHEM**

The Association of Analytical Chemists, ANACHEM, is a non-profit organization dedicated to the general welfare and education of analytical chemists and to the advancement of the theory and practice of analytical chemistry as a profession. The concept of an organization to further and to support analytical chemists and chemistry was conceived by a group of twenty Detroit area chemists in 1941. In 1972 ANACHEM became a founding member of FACSS. ANACHEM remains an active organization running monthly information and educational scientific events, an annual 1-day symposium in the Detroit area and has an active membership between 200 and 250 members. ANACHEM remains one of the largest and most active specialized groups of chemists in southeastern Michigan.

### **About FACSS**

The Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) was established in 1973 to combine many small meetings previously organized by individual member societies into one joint internationally-recognized conference that covers the whole field of Analytical Chemistry. Member Societies have representatives that sit on the Governing Board of the Federation. Member Societies include both United States-based and international societies. Current Member Societies include the American Chemical Society Analytical Division, American Society for Mass Spectrometry, the Association of Analytical Chemists (ANACHEM), the Coblenz Society, International Society for Automation – Analysis Division, the Royal Society of Chemistry Analytical Division, and the Society for Applied Spectroscopy. Additional information is available at [www.facss.org](http://www.facss.org).

Future North American conferences presented by FACSS will carry the name SCIX – the Great Scientific Exchange. Additional information on SCIX and the 2012 SCIX conference is available at <http://scixconference.org/#>

## **March Historical Events in Spectroscopy by Leopold May, Catholic University**

March 5, 1817



Jules Duboscq, who invented the first device for colorimetric quantitative analysis and pH measurements, was born on this day. The Duboscq Colorimeter was the first visual colorimeter.

March 6, 1787



Two hundred and twenty-five years ago Joseph von Fraunhofer, who discovered the dark lines in the solar spectrum (Fraunhofer lines), was born.

March 12, 1824



Gustav R. Kirchhoff, born on this date, discovered that substances which emit radiation absorb the same type of radiation when cool (Kirchhoff's Law). He and Robert Bunsen invented the spectroscope in 1859 and discovered cesium in 1860 and rubidium in 1861.

March 12, 1902      Leslie G. S. Brooker, who did research in the chemistry of photography, was born on this day.

Additional historical events can be found at Dr. May's website, <http://faculty.cua.edu/may/SpectHist.htm>

*Comments to david.butcher@Analytchem.org*