



Vol. 83 (2) February 2007

# ISOTOPICS

The Cleveland Section of the American Chemical Society

## On Deck:

**Wednesday, March 7**

*Meeting-in-Miniature*

**Marion Thurnauer**

*ACS Gavin-Olin Medal Winner*

Notre Dame College

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[http://www.csuohio.edu/cleveland\\_acs/](http://www.csuohio.edu/cleveland_acs/)

## February Meeting Notice

### History Night

### Joint Sponsorship with NEO ACS and SAS

Wednesday, February 21, 2007

Sterle's Slovenian Country Club

4:30 pm	Executive Committee Meeting
5:30 pm	Social Hour
6:30 pm	Dinner
7:30 pm	After Dinner Talk
8:30 pm	Informal Discussion

### History of Instrumentation for Vibrational Spectroscopy

*Norman C. Craig, Oberlin College*

The development of instrumentation for vibrational spectroscopy is a fascinating interplay between the infrared and Raman methods. The story begins with Coblentz's extensive survey of infrared spectra made with a Nernst glower, a rock-salt-prism monochromator, and a radiometer at the beginning of the century. The remarkable discovery of the Smekal-Raman effect occurred by visual observation of the excitation of carbon tetrachloride by the sun's light in 1928. This finding was soon developed into a laboratory method with excitation by atomic lines from the mercury arc, dispersal of light with a glass prism, and photographic detection. By the early 1950s, organic chemists were dependent on the double-beam, electronically advanced, recording infrared instruments in using infrared spectra to do structural determinations and identify substances. The speed and simplicity of the use of the new infrared spectrometers sent the Raman method into eclipse. With the discovery of lasers in the early 1960s, Raman spectroscopy was given new life. In the 1970s, the application of microprocessors to instrument control and data handling boosted both methods. Such computing enabled the application Fourier transform methods and thus caused another revolution in instrumentation for vibrational spectroscopy. In the 1990s, CCDs, an "electronic film," simplified Raman spectroscopy.

**DINNER RESERVATIONS REQUIRED:** Please RSVP by contacting Dr. Lily Ng, by phone at 216-687-2467 or by e-mail at l.ng@csuohio.edu by **5 pm on Friday, February 16.** (For phone reservations, please clearly spell your last name and leave a return phone number.) Cost of the dinner is \$20 for members & guests and \$10 for students. Checks made out to "Cleveland ACS" are greatly appreciated. The dinner will be served family style with a mixture of meat (pork, sausage, and chicken) and vegetable dishes with soup and salad.

## Directions to Sterle's

Take I-90 and exit at E. 55th Street. Proceed south on E. 55th St. Sterle's will be on the left, about 2 blocks south of St. Clair Ave.

## Speaker Bio

Norman Craig is the Robert and Eleanor Biggs Professor of Natural Science, Emeritus in the Department of Chemistry and Biochemistry at Oberlin College. He has a B.A. in chemistry from Oberlin and holds M.A. and Ph.D. degrees in physical chemistry from Harvard. He was chair of the Cleveland Section of the ACS in 2004 and played a major role in the development of the ACS Historic Landmark (1997) for Charles M. Hall's discovery of the electrolytic process for refining aluminum metal. He is currently engaged in research in high-resolution infrared spectroscopy applied to determining equilibrium structures of interesting small molecules. His extensive experience with vibrational spectroscopy began in the early 1950s and is reflected in much of the history described in the talk.

## Meeting in Miniature – March 7, 2007 2<sup>nd</sup> Call for Papers

The annual Meeting in Miniature will be held on March 7, 2007 at Notre Dame College. The afternoon generally consists of oral presentations followed by a poster session during the social hour before dinner. Abstracts for presentations can be submitted by *email only* as a **Microsoft Word documents** (we cannot guarantee that any other format can be properly translated) to Dr. Stephen M. Felch, program chair, at [sfelch@ndc.edu](mailto:sfelch@ndc.edu). Abstracts must be submitted **no later than February 1, 2007**. Monetary awards for best undergraduate and graduate student oral presentations will be given, so encourage your students to participate. Questions about paper and poster submissions can be directed to the program chair.

## Corrected Election Results for 2007

*Director:* **Kenneth Street (07-09)**

*Trustee:* **Elizabeth Dabrowski (07-09)**

## 2007 Irene C. Heller Award – 2<sup>nd</sup> Call for Nominations

The Cleveland Section of the American Chemical Society annually sponsors an award to recognize an outstanding high school chemistry teacher in the Cleveland Section. The award consists of an honorarium of \$1,000 and a framed certificate. The award is named for Irene Heller of North Olmsted High School in recognition of her contributions as an outstanding high school chemistry teacher and her service to the Cleveland Section. Nominations for the award should be presented to Ken Street (contact info below) by **March 16, 2007**. The nominations should consist of information on the candidate's education, professional experience and activities, awards and honors, offices held and specifics on significant contributions. The letter of nomination should highlight these significant contributions. A detailed Curriculum Vita of the candidate may also be included. Seconding letters are suggested. Nominations should be sponsored by at least one member of the Cleveland Section. If you do not know a local section ACS member willing to serve as Champion for your candidate, contact Ken Street and he will provide one for you. The Cleveland Section is geographically confined to the counties of Cuyahoga, Geauga, Lorain, Medina, Huron, and Erie. Nominators of candidates who work outside of these counties may contact the Cleveland Section or the American Chemical Society for more information about High School Chemistry Teacher Awards. Electronic nominations using Word Files will be greatly appreciated.

Dr. Kenneth W. Street, Jr.

Chair, Cleveland Section Awards Committee

NASA - GRC

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### **2006 NCW Contest Winners**

The following students (and their teachers) were selected as winners in the 2006 NCW contests sponsored by the Cleveland Section's National Chemistry Week Committee. Many thanks go to Dr. Mark Waner and the Student Affiliates at John Carroll University for selecting the winners from 785 student entries. Students and their teachers will be honored at the April "Education and Family Night" meeting.

#### Poster Contest Winner:

Serena Chang (Linda Brown)

#### K-5 Chemistry Contest Winners:

Natalie Kusner (Lynn Fagerholm)  
Tommy Shaker (Lynn Fagerholm)  
Angelina Bisesi (Lynn Fagerholm)

#### 6-8 Chemistry Contest Winners:

Annie Stuart (Mary Carney)  
Mikala Telgarsky (Mary Carney)  
Lisa Harkey (Mrs. Valerie Robinson)

#### 9-12 Chemistry Contest Winners:

Sam Bauman (Ms. Rachel Nicholson)  
Brittany Gangel (Ms. Rachel Nicholson)  
Chris Chung (Mrs. Judy Lachvayder)

### **Chemistry Olympiad - 2007**

*Attention All High School Teachers and Students*

We are pleased to announce our participation in the 2007 U.S. National Chemistry Olympiad (USNCO). This is a multi-tiered competition designed to stimulate and promote achievement in high school chemistry. Students competing in the USNCO are eligible to be selected as members of the United States team for the International Chemistry Olympiad (IChO). The 2007 international event will be held in Moscow, Russia. To prepare for the national event, Cleveland section of ACS will conduct the 2007 Preliminary Examination, as recommended by the UNSCO, during the month of March. Based on the

success of the preliminary examination, specified numbers of the top students will be invited to take the USNCO national exam at Cleveland State University. Following the National exam in late April, twenty top chemistry students nationwide will be selected to attend a study camp. A team of four finalists and two alternates will represent the U.S. For those interested in participating in the 2007 High School Chemistry Olympiad, please find additional information regarding USNCO (& to see past tests) by going to:

<http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=education/student/olympiad.html>

OR to find more details regarding the Preliminary Exam, watch for more announcements in Isotopics or contact Dr. Reiko Simmons.

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