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The *Kansas City Chemist* (Publication No. USPS 042-010) is a subscriber publication and is published monthly, September through May, nine months a year, with offices at 425 Volker Blvd., Kansas City, MO 64110. Subscription rate for members: \$2.50 per year (allocated from the annual ACS allotment to our local section funds provided from members' ACS national dues); non-members: \$2.50 per year, 30¢ per single copy.

Printed by Talco Direct, Lee's Summit, MO. Periodical postage paid at Kansas City, MO 64108.

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POSTMASTER: DATED MEETING NOTICE

Please Deliver the Week of February 17, 2003

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POSTMASTER: DATED MEETING NOTICE — DO NOT DELAY

Calendar of Events

Local, Regional and National
 Please call Ed Levy at (913) 381-2435 for
 publication of future ACS Calendar of Events.

March 11 or 13 Dr. V. Young
 University of Florida
 (Date tentative)

April 17: Dr. Mary Kirchoff,
 Green Chemistry Institute

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The Kansas City Chemist

February 2003 • Volume 57, No. 2

Spencer Award Banquet

Thursday, February 27, 2003

"The Importance of Enantiomeric Analysis in Food, Agricultural, and Environmental Science"



Daniel W. Armstrong
 Iowa State University
 Department of Chemistry

February Dinner Meeting

Date: Thursday, February 27, 2003

Place: Linda Hall Library - Reading Room
5109 Cherry Street
Kansas City, MO 64110

Time: 5:45 pm Social Hour
Cash Bar
Rare Book Collection Tours

6:45 pm Dinner
Cost \$25.00
Professors may bring 2 students free. Additional students will be charged \$15.00. See menu on page 11.

8:00 pm Program

Speaker: Dr. Daniel Armstrong
Iowa State University
Department of Chemistry

Topic: Spencer Award & Dr. Armstrong's Award Presentation:
"The Importance of Enantiomeric Analysis in Food, Agricultural, and Environmental Science"

Reservations: Contact Sarah Leibowitz (Bayer) at 816-242-2473 e-mail: sarah.leibowitz@bayercropscience.com or Gary Clapp 913-248-3009 e-mail: garyc@aaainitl.com Please RSVP by February 24th, 2002.

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Spencer Award Dinner Menu

Butler Passed Hors D'oeuvres (Total of 2 Pieces Per Person):
Mesquite Smoked Breast of Chicken With Pico de Gallo on Croute
Smoked Salmon Pinwheels On Toast Points with Fried Caper Garnish

Dinner:
Belgian Endive, Radicchio, and Baby Spinach, Citrus Marinated Baby Scallops with a Lime Vinaigrette, Sundried Tomatoes and a Parmesan Crostini

Duet of:
Sundried Encrusted Fillet of Salmon With a Light Garlic Cream Sauce &
Filet Mignon served on a Grilled Portobello Mushroom With Shiitake Demi-Glaze

Fontina and Mushroom Risotto

Spinach Puff - Layered Puff Pastry with Creamed Spinach, Pine Nuts and Cheese With a Light Curry Bechamel Sauce

Rolls Served with Butter

Turtle Cheesecake

Coffee, Decaffeinated Coffee, Iced Tea, and Hot Tea

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The new Chemist in pdf form should be there.

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About The Speaker

Spencer Award Winner 2002 – Daniel Wayne Armstrong

Daniel W. Armstrong is the Caldwell Professor of Chemistry at Iowa State University, and a Laboratory Supervisor at the DOE Ames National Laboratory.



Dan Armstrong's fundamental work on chiral recognition and separation of biologically important molecules (esp. between 1980 and 1994) has had an increasingly profound effect on both agricultural and food science that will continue for years. From the late 1980's to the early 1990's, he published a series of prophetic articles based on his, and others, research over the previous decade. These involved the relevance of enantiomeric analysis and the disposition in foods and beverages to humans. Other articles were on the environmental importance of chirality, especially for pesticides and herbicides. An increasing number of studies have been done in these areas since.

The enantioselective technologies that were developed have become industrial mainstays for flavor and fragrance analysis, for enantiomeric excess determinations. The identification of natural vitamin E, (+) - tocopherol, and the racemic synthetic tocopherol (which has half the potency) can best be done with chiral LC methodologies. The same thing is true for many of the other important vitamins and their close relatives, e.g., folic acid, folinic acid, etc; as well as amino acids. Studies involving stereoisomeric changes in foods and beverages as a result of production methodologies, aging, storage, and their effect on nutritional value; have entered the mainstream of food science.

Other studies involving the disposition and biodegradation of chiral pesticides and herbicides have increased tremendously. Enantiomers of a pesticide biodegrade differently. Usually, one of the two enantiomers is much more persistent in the environment, and ironically, it often is the inactive isomer. Use of only the active isomer of a pesticide or herbicide is a way to substantially decrease the environmental load of these compounds, without altering their efficacy.

Dan Armstrong received his B.S. degree (1972) from Washington and Lee university and his M.S. degree (1974, Oceanography) and Ph.D. degree (1977, Chemistry) from Texas A&M University. He has over 300

Continued on page 7

About The Meeting

The Importance of Enantiomeric Analysis in Food, Agricultural, and Environmental Science

by

Daniel W. Armstrong

Iowa State University, Department of Chemistry

From the early 1980's to the mid 1990's, a series of highly effective and efficient enantioselective separation methods were developed for HPLC, GC, and CE. Prior to these developments, the separation and analysis of enantiomers was considered to be a difficult and often impossible task. In general, it was something to avoid or ignore. Today, enantiomeric separations are considered to be routine. They have had a profound impact on many areas of science and technology. In food science, enantiomeric constituents can have profound effects on nutritional value, flavor, and fragrance. Many agrochemicals are racemates in which 50% of the product plays no useful role. Environmental biodegradation of racemic pesticides and herbicides often occurs at different rates for different enantiomers. These phenomena as well as other specific examples will be presented and discussed.

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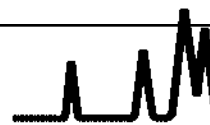
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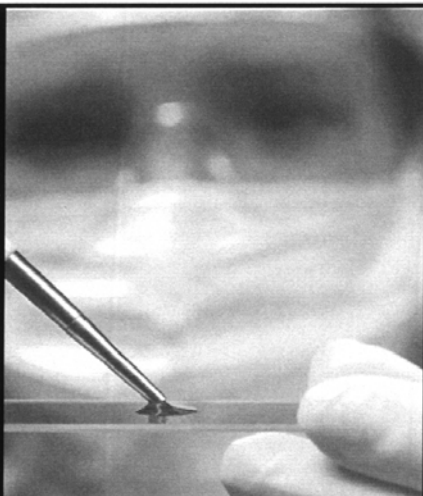
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Continued from page 3

publications, 20 book chapters, one book ("Use of Ordered Media in Chemical Separations") and eight patents. Several of his research publications have been in the *Scientific Citation Index Review* as "Highly Cited Papers". He has given over 320 invited seminars and colloquia worldwide. His current work crosses the boundary between biology and chemistry. He has developed the first rapid, high efficiency methods to simultaneously identify, quantitate, and characterize mixtures of microorganisms (i.e., bacteria, fungi, and viruses). This will have a profound impact on the diagnoses of diseases, real-time monitoring and evaluating of fermentations, and evaluating microbe-molecule interactions. This work was recently featured in a news article in the magazine *Modern Drug Discovery*. Dan Armstrong is considered the "Father" of micelle and cyclodextrin-based separations. He elucidated the first chiral recognition mechanism by cyclodextrins. He also first developed macrocyclic antibiotics as chiral selectors. He is one of the world's leading authorities on the theory, mechanism and use of enantioselective molecular interactions in biological and chemical systems. Over 30 different LC and GC columns originally developed in his laboratories (for the separation of biologically important molecules) have been commercialized and/or copied worldwide. His work and columns were in part responsible for the chromatography and electrophoresis - lead revolution in chiral separations over the last twenty years.

Dan Armstrong has won several teaching and research awards including the Eastern Analytical Award for Separation Science (1990). Great Britain's Martin Medal (1991), and the Isco Award for contributions to instrumentation for biochemical separations (1991), the Presidential Award for Research and Creativity (1993), the ACS Midwest Award in Chemistry (1993), the Perkin Elmer Award for Capillary Electrophoresis (1994), the R&D 100 Award for Inventions leading to a better world (1995) and was named a Fellow of the American Association of Pharmaceutical Scientists (1995). In 1996 he was given the Benedetti-Pichler Award in Microchemistry; in 1997, the Karen Morehouse Award, in 1998 the ACS Helen M. Free Award, the 1999 ACS Award in Chromatography, in 1999 he received the Distinguish Scholar Award from Hope College/Park Davis. In 2001 he was given the Moreton Lectureship Award from Millsaps College, and the Chicagoland/Baxter Separations Merit Award, and was named an Honorary Member of the Slovakian Pharmaceutical Society. He is the Associate Separations Editor for Analytical Chemistry and the former Editor of the international journal *Chirality*, a section Editor for *Amino Acids*, and a member of the Editorial Board of many other journals.