August 1992

34th Rocky Mountain Conference on Applied Spectroscopy

Follow this and additional works at: https://digitalcommons.du.edu/rockychem

Part of the Chemistry Commons, Materials Science and Engineering Commons, and the Physics Commons

Recommended Citation

Available at: https://digitalcommons.du.edu/rockychem/vol34/iss1/1

This work is licensed under a Creative Commons Attribution 4.0 License.
This Article is brought to you for free and open access by Digital Commons @ DU. It has been accepted for inclusion in Rocky Mountain Conference on Magnetic Resonance by an authorized editor of Digital Commons @ DU. For more information, please contact jennifer.cox@du.edu,digitalcommons@du.edu.
PROGRAM
AND
REGISTRATION INFORMATION
AUGUST 2-6, 1992
RADISSON HOTEL DENVER
1550 COURT PLACE
DENVER, COLORADO
SPONSORED BY
ROCKY MOUNTAIN SECTION
SOCIETY FOR APPLIED SPECTROSCOPY
COLORADO SECTION
AMERICAN CHEMICAL SOCIETY
# TABLE OF CONTENTS

- REGISTRATION INFORMATION 2
- EXHIBITION 3
- SOCIAL PROGRAM 4
- TOURS 6
- TRAVEL 7
- HOUSING 8
- MESSAGE CENTER 8
- RESTAURANT SERVICE 8
- EMPLOYMENT CLEARING HOUSE 10
- VENDOR WORKSHOPS 11
- SHORT COURSES 18
- CONFERENCE ORGANIZERS 23
- TECHNICAL PROGRAM 26

## SYMPOSIA SCHEDULE
(page number in program)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MONDAY</td>
<td>TUESDAY</td>
<td>WEDNESDAY</td>
<td>THURSDAY</td>
</tr>
<tr>
<td></td>
<td>A.M.</td>
<td>P.M.</td>
<td>A.M.</td>
<td>P.M.</td>
</tr>
<tr>
<td>Atomic Spectroscopy</td>
<td>26</td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromatography</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrochemistry</td>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elect. Paramag. Res.</td>
<td>36</td>
<td>37</td>
<td>38-43</td>
<td>44</td>
</tr>
<tr>
<td>Environmental</td>
<td>31</td>
<td>32,33</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>FTIR/IT/RAMAN</td>
<td>49,50</td>
<td>51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td>52</td>
<td>53</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>ICP-Mass Spec</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab Total Qual. Mangt</td>
<td>72</td>
<td>73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luminescence</td>
<td>56</td>
<td>57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass Spectrometry</td>
<td>58</td>
<td>59</td>
<td>59</td>
<td>60</td>
</tr>
<tr>
<td><strong>NMR</strong></td>
<td>61</td>
<td>62</td>
<td>63</td>
<td>64</td>
</tr>
<tr>
<td>Pharmaceutical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Assurance</td>
<td>70</td>
<td>71</td>
<td>72</td>
<td>73</td>
</tr>
<tr>
<td>Robotics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posters</td>
<td>74</td>
<td>75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dear Colleagues:

I invite you to attend the 34th Rocky Mountain Conference the first week in August of this year. This conference is a lively one, which prides itself on being able to maintain an air of informality. Technical presentations are as up to date as today's laboratory experiments. New ideas are welcomed, both from the speakers and the audience. This conference stresses an exchange of ideas between attendees and lecturers.

By way of background information; the 34th Rocky Mountain Conference on Analytical Chemistry is an annual conference which is held at the foot of the Colorado Rockies. The conference offers a wide variety of technical symposia in the area of chemistry and related fields. The symposia range from national to international in scope and attendance. Keynote speakers are featured. Their talks bring together the general discipline direction and establish an atmosphere conducive to scientific information exchange and understanding at the technical symposia presentations.

Featured in this year's program are several panel discussions led by noted experts in a variety of the subject areas. These panel discussions are open exchanges between the audience and the panel and allow for ideas and information to be presented by any interested attendee. A number of special symposia will be presented which cross between disciplines. There will be 13 topical symposia. In every aspect, this conference strives to present a pleasant surrounding and proper atmosphere for a complete scientific meeting. An exhibition of equipment accompanies the symposium. Vendors will demonstrate the most modern instruments available. Vendors also offer low cost or no cost workshops on specific subjects of current interest. At this date 11 workshops are scheduled.

An exciting social program is available featuring tours both inside and outside of Denver. Trips will be available each day to nearby mountain areas. Join us for an exciting technical program and an enjoyable stay in the cool Colorado Rockies.

Marvin C. Goldberg,
Chairman 34th Rocky Mountain Conference
On Analytical Spectroscopy
CONFERENCE TOCATTON

Technical sessions and the exhibition for the 34th Rocky Mountain Conference on Analytical Chemistry will be held in the Radisson Hotel Denver, 1550 Court Place, Denver, Colorado 80202.

REGISTRATION

Admission to all technical sessions, vendor sponsored user's groups and the exhibition is by the name badge for the 34th Rocky Mountain Conference. Pre-registration, using the form in the center of this booklet, is encouraged. The deadline for the receipt of the pre-registration form and full remittance of the conference fees is July 20, 1992. Conference fees are payable by check (denominated in $ US, only) made payable to the Rocky Mountain Conference.

REGISTRATION FEES - 1992

<table>
<thead>
<tr>
<th></th>
<th>Pre-registration (received by 7/20/92)</th>
<th>On Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration (entire conference and exhibition)</td>
<td>$60.00</td>
<td>$80.00</td>
</tr>
<tr>
<td>Registration (one specified day)</td>
<td>$35.00</td>
<td>$45.00</td>
</tr>
<tr>
<td>Student Registration (requires ID)</td>
<td>$25.00</td>
<td>$35.00</td>
</tr>
<tr>
<td>Additional Vendor Registration</td>
<td>$45.00</td>
<td>$45.00</td>
</tr>
<tr>
<td>Unemployed or Retired Registration</td>
<td>$25.00</td>
<td>$35.00</td>
</tr>
<tr>
<td>Exhibition only (non-vendor)</td>
<td>$15.00</td>
<td>$15.00</td>
</tr>
<tr>
<td>Banquet</td>
<td>$30.00</td>
<td></td>
</tr>
<tr>
<td>Tours (please see page for tour price information)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REFUNDS

Requests for refunds of conference fees must be received by July 20, 1992.
On-site registration for the 34th Rocky Mountain Conference will be held in the Convention Lobby of the Radisson Hotel Denver during the following hours:

<table>
<thead>
<tr>
<th>Date</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday, August 2</td>
<td>5:00 p.m. - 9:00 p.m.</td>
</tr>
<tr>
<td>Monday, August 3</td>
<td>7:30 a.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>Tuesday, August 4</td>
<td>7:30 a.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>Wednesday, August 5</td>
<td>7:30 a.m. - 3:30 p.m.</td>
</tr>
<tr>
<td>Thursday, August 6</td>
<td>8:00 a.m. - 2:30 p.m.</td>
</tr>
</tbody>
</table>

**EXHIBITION**

The Rocky Mountain Conference exhibition provides an opportunity to see and discuss the latest in analytical instrumentation, supplies, and services. Other activities in the exhibition hall include coffee breaks, mixers and poster sessions.

**HOURS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday, August 2</td>
<td>Mixer</td>
<td>7:00 p.m. - 9:00 p.m.</td>
</tr>
<tr>
<td>Monday, August 3</td>
<td>Exhibits</td>
<td>9:30 a.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>Monday, August 3</td>
<td>Posters</td>
<td>2:00 p.m. - 4:00 p.m.</td>
</tr>
<tr>
<td>Monday, August 3</td>
<td>Reception</td>
<td>5:00 p.m. - 7:30 p.m.</td>
</tr>
<tr>
<td>Tuesday, August 4</td>
<td>Exhibits</td>
<td>9:30 a.m. - 5:00 p.m.</td>
</tr>
<tr>
<td>Wednesday, August 5</td>
<td>Exhibits</td>
<td>9:30 a.m. - 5:00 p.m.</td>
</tr>
</tbody>
</table>

Posters will be set up in the exhibition area Monday morning through Wednesday afternoon. For space or information about the exhibition, contact:

Jim Parker  
Schuller International  
The Mountain Technical Center  
PO Box 625005  
Littleton, CO 80162-5005  
Telephone (303) 978-5481  
Fax (303) 978-5094
The following have reserved space as of March 26, 1992

Air Products and Chemicals
Allen Scientific Glassblowing
Applied Technical Products
Biotransformation, Inc.
Bruker Instruments, Inc.
CEM Corporation
Cenref Labs
Chemagnetics
Doty Scientific, Inc.
Extrel, Division of Millipore
Finnigan MAT
FISON Instruments
GMW Associates
High-Purity Standards
Hitachi Instruments
Huffman Labs
JEOL USA
Kurt Lesker Company
Mattson Instruments, Inc.

Dionix
Micro-Now Instrument Co.
Norell, Inc.
Oxford Instruments
Perkin Elmer
Puregas-General Cable
Questran Corporation
Rainin Instruments
Resonance Research
Rocky Mountain Scientific
Spectral Data Services
Superior ICP
Tekmar Company
Thermo Jarrell Ash
VarianNMR
Waters Chromatography, Division of Millipore
Zymark Corporation

Time and space are also available for exhibitors interested in sponsoring short workshops. Contact Jim Parker, at the above location for more information.

SOCIAL PROGRAM AT THE RADISSON HOTEL

REGISTRATION NIGHT MIXER

A cash bar will be open in the conference registration area of the Radisson Hotel Denver on Sunday evening, August 2, from 7:00-9:00 p.m. Plan to meet other conference attendees and beat the Monday rush to pick-up your conference badge and abstract book.

CONFERENCE MIXER

On Monday afternoon, August 3, immediately after the conference, please join us for a cocktail and hors d’oeuvre mixer at the Radisson Hotel in the Exhibit area.
CONFERENCE BANQUET

The conference banquet will be on Tuesday, August 4, from 7:00-10:00 p.m. in the Majestic Ballroom of the Radisson. Tickets are $30.00 each. There will be a cash bar in the Majestic Lounge at 6:00 p.m. The speaker for the banquet will be Chancellor Dwight M. Smith. Dr. Smith will speak on the subject of "Higher Education in the 90's; Challenges To Its Credibility."

Dr. Dwight M. Smith, former Chancellor of the University of Denver, became President of Hawaii Loa College in July 1990, bringing more than 30 years of experience in higher education as an administrator, researcher, and teacher. A member of the University of Denver faculty since 1972, Dr. Smith served as Chairman of the Department of Chemistry and Vice Chancellor of Academic Affairs, in addition to Chancellor. He earned his bachelor's degree at Central College in Iowa and his Ph.D. at Pennsylvania State University. He was a postdoctoral fellow at California Institute of Technology and a National Science Foundation Fellow at Scripps Institution of Oceanography. Dr. Smith held the position of Senior Chemist with Texaco Research Center before beginning his academic career at Wesleyan University in Connecticut. He has authored more than 50 scientific articles and has established an international reputation in the fields of surface and atmospheric chemistry.
TOURS

Everyday: Mountain Casino Tour $15
Departs 10:00 a.m. Return 4:00 p.m.

Monday, August 3 Pikes Peak & Air Force Academy $30
Depart 8:00 a.m. Return 6:00 p.m.

Tuesday, August 4 Rocky Mountain National Park $28
Depart 8:00 a.m. Return 6:00 p.m.

Wednesday, August 5 Squaw Pass & Georgetown Loop Railroad $24
Depart 8:00 a.m. Return 4:00 p.m.

Wednesday, August 5 Country Dinner Playhouse $35
Depart 5:00 p.m. Return 11:00 p.m.

Lunch is not included in the price of the tours. All tour groups will leave from the Radisson Hotel. For further information and reservations, please contact Hanna Golderg, 5741 E. Fair Place, Englewood, CO 80111 (303) 779-8147. Please make your reservations early. Tours will only run if full.

Name:__________________________________________

Address:__________________________________________

City,State,Zip__________________________________________

Phone:__________________________________________

Tour(s):__________________________________________

Amount enclosed: $____________________________________

Send this form and check for entire amount for tours to Hanna Golderg at above address.
TRAVEL

Special Rocky Mountain Conference Fares on Continental Airlines

Continental Airlines has joined with the Rocky Mountain Conference to offer special airfares that are not available to the general public when you attend the Conference and travel between July 23, 1992 and August 8, 1992, inclusive.

Continental Airlines will offer a variety of discount fares: call for availability. To obtain these special fares, follow these easy steps:

1. Phone Continental at (800) 468-7022. Call weekdays from 6:00 a.m. to 12:00 midnight, CST, and on Saturdays from 8:00 to 4:00 p.m. CST.

2. The identification number assigned to the Rocky Mountain Conference is EZ8T53.

3. Continental specialists will provide information and make reservations for all flights and fares, including the special conference fare. This fare is available on Continental flights within the United States (in Canada, ask for the special meeting fare).

Whichever means of ticketing you choose, the special conference fare can only be obtained when the reservation is initiated by phone through the special Continental 800 number listed above.

Seats are limited, so call early for best availability. Fares are guaranteed at time of ticket purchase. Tickets must be requested two weeks in advance of desired travel. Tickets may not be sold or bartered.
HOTEL ACCOMMODATIONS

Hotel rooms where the conference is being held, at the Radisson Hotel Denver, 1550 Court Place, Denver, CO 80202, (303) 893-3333, are available at the special discounted conference rate of $80 per night (single) $90 per night (double), plus applicable tax. Please use the discount coupon in the center of this booklet to insure that you receive the special rate. Suites available upon request at the conference discount. The reservation form in the center of the booklet must be returned directly to the hotel. Conference location and all associated social functions for the conference will be held at the Radisson Hotel Denver.

Additional hotels, within easy walking distance or a short ride on the 15th Street Mall shuttle bus (free), are listed below. Locations are given on the map inside the back cover. For rates and reservations, contact the hotel directly.

The Brown Palace Hotel, 321 17th Street, Denver, CO 80202. (303) 297-3111 or (800) 321-2599: (800) 228-2917 in Colorado.

Comfort Inn, 401 17th Street, Denver, CO 80202. (303) 296-0400, (800) 237-8431 (outside Colo), (800) 631-2090 (in Colo).

Executive Tower Inn, 1405 Curtis Street, Denver, CO 80202. (303) 571-0300 or (800) 525-6651.

Hyatt Hotel, 1750 Welton Street, Denver, CO 80202, (303) 295-1200 or (800) 527-4727.

Hotel Denver-Downtown, 1450 Glenarm Place, Denver, CO 80202, (303) 573-1450 or (800) 423-2201 (in Colo), (800) 423-5128 (outside Colo).

Marriott City Center, 1701 California Street, Denver, CO 80202, (303) 297-1300 or (800) 228-9290.

Warwick Hotel, 1776 Grant Street, Denver, CO 80203, (303) 861-2000 or (800) 525-2888.
VISITOR INFORMATION

Denver and the surrounding area boast a large number of activities that are enjoyable for both young and old. For additional information contact the Denver Metro Convention and Visitors Bureau, 225 W. Colfax Avenue, Denver, CO 80202, (303) 892-1112. For information about statewide attractions contact the Colorado Tourism Board, 1625 Broadway, Suite 1700, Denver, CO 80202, (303) 592-5510.

MESSAGE CENTER

Incoming telephone messages for conferees will be posted at the message center in the registration area. The telephone is (303) 893-3333, ext. 337. Ask for the Rocky Mountain Conference on Analytical Chemistry message center. This service will be available from 8:00 a.m. to 3:30 p.m. Monday-Wednesday and from 8:00 a.m. to 10:00 a.m. Thursday.

RESTAURANT SERVICE

The Communications Department of the Denver Metro Convention and Visitors Bureau will provide a FREE restaurant service designed to let out-of-town delegates know about Denver's world class dining opportunities, from casual to elegant. The Dining Desk will have a header that reads "Free Restaurant Reservations", and will also have an experienced reservation person, a phone and a cart featuring poster-size menus that delegates can browse through. This service has been in operation for five years and has been extremely successful in providing delegates with convenient, courteous, and efficient service.

MEMBERSHIP COMMITTEE

The Colorado Section of The American Chemical Society, Membership Committee will have a booth for prospective members. On-site membership sign-up will be available. Prior to the Conference, inquires can be sent to:

Marvin C. Goldberg, Chairman
PO Box 25046
Mail Stop 424
Lakewood, CO 80225
(303) 236-4728
EMPLOYMENT CLEARING HOUSE

The Employment Committee of the Colorado Section of the American Chemical Society will sponsor a workshop on: Resume Preparation and Conduct During An Interview. The workshop will be conducted by Shawn Moul, Lab-Support, on Tuesday morning, August 4. The workshop will consist of formal presentations by Shawn, with follow-up discussion on an individual basis.

The employment committee will also conduct an employment clearing house. Resumes will be accepted prior to, and during the meeting, for review by prospective employers. Facilities will be available for on-site interviews by employers. Employers who are interested in using this employment booth should register by contacting one of the employment committee members listed below by July 20, 1992.

Douglas B. Manigold, Chairman
U.S. Geological Survey
5293 Ward Road
Arvada, CO 80002
(303) 236-5345
FAX (303) 467-9598

Sonia Atwood
Marathon Oil Company
PO Box 269
Littleton, CO 80160
(303) 794-2601
FAX (303) 794-1720

Helen Brandenburg
U.S. Geological Survey
5293 Ward Road
Arvada, CO 80002
(303) 467-8224
FAX (303) 467-9598

Ronald G. Thompson
Marathon Oil Company
PO Box 269
Littleton, CO 80160
(303) 794-2601 ext. 708
FAX (303)794-1720

Interested employers and job seekers can receive additional information on available jobs and on the employment booth activities by calling the ACS Employment committee Hotline number which is (303) 933-4375.
VENDOR WORKSHOPS

The Art of Sample Preparation for Spectrochemical Analysis
Instructor: Theodore C. Rains
Thursday, August 6, 1992 8:30 a.m. - 12:00 noon
$25.00

This course is intended for the chemist, analyst, biochemist, or clinician who is interested in state-of-the-art sample preparation for instrumental methods. Techniques used at the National Institute of Standards and Technology (formerly National Bureau of Stands) for the preparation of standard solutions will be described. Topics covered include sampling, sample dissolution procedures for metals, ores, glasses, clays, air particulates, foods, and biological tissue techniques to control the analytical blank, preparation and storage of standard stock solutions, and separation and preconcentration techniques. The course will include techniques to alleviate contamination in trace elemental analysis and to improve quality assurance in the analytical laboratory.

Theodore C. Rains is a senior research chemist (retired) from the National Institute of Standards and Technology (NIST) and presently president of High-Purity Standards. In his 13 years of experience at Oak Ridge National Laboratory and 25 years at NIST, he has acquired vast experiences in the area of sample preparation and trace elemental analyses for certification of over 400 new and renewed Standard Reference Materials, he has lectured extensively at national and international meetings and has over 160 technical publications.

To register: Send check for $25.00 to High Purity Standards, Inc. PO Box 30188, Charleston, SC 29417. For information call: (803) 556-3411 or FAX (803) 556-8171.

Name:_____________________
Organization:________________________________________
Address:_____________________________________________
City, State, Zip________________________________________
Phone:_________________Fax:__________________________
VENDOR WORKSHOPS

MICROWAVE SAMPLE PREPARATION FOR AA/ICP ANALYSIS WORKSHOP

Date: August 6, 1992: 9:00 a.m. - 12:00 noon
Presented by: CEM Corporation
PO Box 200
Matthews, NC 28106
To register please call: Karen Abee at (800) 728-3331  CEM Corporation

The workshop is designed for users as well as prospective users of microwave sample preparation systems. Topics include:
*New Advancements in Microwave Technology Temperature and Pressure*
*How and Why Demonstration of Software/ Temperature/Pressure Capabilities*
•Microwave Theory, Easily Understood*
*EPA Regulations....Where are we?*
*Detail Application Discussions for the Preparation of: Oils, Soils, Filters, Paint Chips, Tissues, and Mixed Wastes*

FINNIGAN MAT USERS MEETING

Date: August 6, 1992
Presented by: Finnigan
To register and submit topics for discussion, call Lelah Wright at (415) 433-4800, ext. 2384.

The local Finnigan MAT User's Meeting is scheduled during the Rocky Mountain Conference for Applied Spectroscopy in Denver, CO. The purpose of this meeting is to bring together our users to help stimulate productive exchange of ideas, and to update you on the direction of the company and our products. Finnigan MAT representatives will be present to answer your questions regarding products, applications and customer service. This meeting is meant to benefit those directly involved with the use of our mass spectrometers. An announcement with the presentation schedule and registration form will follow.
AN OVERVIEW OF RECENT ADVANCES IN FTIR SPECTROSCOPY

Presented by: Bio-Rad
To register: contact Bob Dyse  (303)794-0509

Topics include:
• Spectral Mapping via Reflectance Microprobe
* Dept Profiling via FTIR/Step-Scan Photoacoustic Techniques
* StepScan and Time Resolved Methods
* 2D & 3D FTIR Techniques
• Applications for FT-Raman
* New Hyphenated FTIR Techniques

INCREASING PRODUCTIVITY WITH CHROMATOGRAPHY AUTOMATION

Presented by: Dionex Corporation
Date: Wednesday, August 5, 1992; 8:30-11:30 a.m.
To register: contact Lee Ramirez, Dionex Corporation (303) 771-2129

Gain an understanding of your automation and data processing needs for GC, LC, IC, CE, and SFC. This seminar will help you access and prioritize those needs so that you can choose the right system for your laboratory. Get an overview of the new Microsoft Windows 3.1 and the new Dionex AI-450 3.3. Learn how AI-450 and Windows lets you take advantage of memory beyond the 640K DOS barrier to multi-task applications without compromising performance. Learn how the built-in clipboard and Dynamic Data Exchange (DDE) features of AI-450 and Windows let you quickly and accurately transfer both text and graphics between applications. Discover how easy it is to create professional-quality custom reports. Learn how your chromatography workstations can be linked together with a LAN or LIMS to centralize data storage and why distributed data processing with PC front-end workstations has significant advantages over centralized systems. See for yourself how easy it is to tap into the power of the Windows 3.1 environment and the AI-450 software.
ADVANCES IN CHROMATOGRAPHY SEPARATIONS BY CAPILLARY ELECTROPHORESIS, UIB CHROMATOGRAPHY, LIQUID CHROMATOGRAPHY, AND SUPERCRITICAL FLUID EXTRACTION AND CHROMATOGRAPHY.

Presented by: Dionex Corporation
Date: Wednesday, August 5, 1992; 1:00-4:30 p.m.
To register: contact Lee Ramirez, Dionex Corporation (303) 771-2129

This seminar will explore different solutions for expanding your laboratory capabilities from sample preparation to the final analysis. Chromatography separations by CE, IC, HPLC, and SFC will be discussed in depth. Special emphasis will be placed on new advances in ion analysis by Capillary Electrophoresis. Methods development in ion analysis will be a major topic of discussion. Learn how Supercritical Fluid Extraction can increase productivity of sample prep and reduce your laboratory’s solvent consumption.

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT LIMS BUT WERE AFRAID TO ASK

Presented by: Laboratory MicroSystems, Inc

To register contact: Dori Vallone (518) 274-1990 ext. 114
Laboratory Micro Systems, Inc.
The Hendrick Hudson Building
Troy, New York 12180

LIMS Seminar I
August 6, 1992: 9:00 a.m. to 12:00 p.m.

This seminar was designed for laboratory managers and personnel interested in Laboratory Information Management Systems (LIMS). There will be a discussion on LIMS in general including such topics as: benefits and considerations of LIMS, the evaluation process, hardware considerations, and stages of implementation. Afterwards, there will be a demonstration of the Lab Vantage LIMS, including ease of use and depth of functionality issues as well as examples of sample login, manual data entry and report generation in different types of laboratories.
MATERIALS TESTING SOFTWARE SEMINAR

LIMS Seminar II
August 6, 1992  1:00 p.m. to 3:15 p.m.
Presented by: Instron Corporation

For registration information, contact Dori Vallone at (518) 274-1990 ext. 114.

Series IX is a world popular (over 4,000 users) materials testing software designed exclusively for the Instron line of test machines. The system offers machine control and data acquisition on Instron machines including tensile, flexural (bend), compression, and yarn/fiber tests. Benefits include the ability to run tests and generate complete reports in minutes, real time autoscaling test plots eliminating chart paper, and fast setup of almost any test without programming, and complete relational database capable of searching and sorting test results for SPC/SQC (statistical processor quality control) analysis plots and special reports (e.g. certification reports). The session provides an introduction to the concept of computerized testing, benefits justification, and includes a live demonstration of Instron's Series IX software. There is no additional charge for either seminar, but registration is limited.

AIR/SOILS ENVIRONMENTAL SEMINAR

Presented by: Tekmar Company
Session I - 8:30 a.m. - 12:00 noon  August 6, 1992
For more information, please contact Leslie Federle at (800) 543-4461.

This session will focus on air analysis including both thermal desorption and cannister sampling.

Session II - 1:30 p.m. - 5:00 p.m.
August 6, 1992

This session will focus on the analysis of Volatile Organic Compounds in soils utilizing both Purge & Trap and Headspace Methods. The seminars are free, however registration is required.
ENVIRONMENTAL SEMINAR
Presented by: Waters, Division of Millipore

This seminar is free, however, registration is recommended. If additional information is required, please contact Denise Kent at (800) 632-2708 ext. 2168. If you would like to register, simply leave your name and number and Denise will call you back.

As more environmental analysis methods are turning to HPLC and HPLC-Mass Spec, the Waters Chromatography Division of Millipore is sponsoring an Environmental workshop for chemists involved in R& D, consulting, and the Contract Laboratory Program. The seminar will consist of interactive lectures regarding new and accepted methods of analysis by HPLC and HPLC-MS, and sample prep for GC and HPLC. Topics to be discussed are:

*Sample preparation by solid phase extraction, with particular emphasis on aldehydes and ketones in air.

•Sample extraction of organics in water (Methods 525 and 550.1) with trifunctional C18 SPE cartridges.

*GPC Sample Cleanup

•Organic Analysis - New HPLC Methods for Environmental Analysis

•Inorganic Analysis - Ion Chromatography~Yes you can do it now on existing gear!!

ENVIRONMENTAL SAMPLE PREPARATION
Presented by: Zymark Corporation, August 6, 1992

For registration information contact Zymark Corporation at (303) 838-5825 or write to Zymark Corporation, Zymark Center, Hopkinton, Massachusetts 91748 (508) 435-9500. Fax (508) 435-3439

This workshop will cover the basic aspects of sample preparation for EPA method series 500, 600, and 8000. Evaporation and sample preparation on the Tubovap and Benchmate work stations will be demonstrated. A new product release for large volume solid phase extraction will also be demonstrated for use in herbicide and pesticide extraction from water. Zymark Corporation will host a one half day hands on workshop for environmental sample Preparation. This workshop is free to the registrants of The Rocky Mountain Conference. Those not attending the conference may attend for a fee of $100.00.
ThermoSPEC SOFTWARE SEMINAR
Presented by: ThermoSPEC, August 6, 1992 8:30-5:00
Fee: $35.00

A workshop for experienced users of Thermo Jarrell Ash AAS and ICPES systems will be offered to Conference attendees at an additional $35.00 charge for the workshop that includes lunch. A structured learning session, led by Ron Manabe will be held in the morning with open discussion following the lunch break. Space is limited for this workshop and pre-registration is recommended. The deadline for online registration is noon, Monday, August 3. Call (415) 327-5605 if additional information is needed. Seminar topics include:
•Latest Features of ThermoSPEC Version 5.0x
•Real Life Experiences with LIMs and LANs
•Multi-tasking Revisited
•Command Language Update
•Hints and Tricks for Sequential ICAP Systems
•What’s New with ThermoLINC
•Multielement Flame, ASAMP, AP Programming
•General Method Development for Graphite Furnace, Matrix Modifiers, and Multielement Furnace Analysis
In addition to the above topics, users are encouraged to give presentations in the afternoon on their experiences with ThermoSPEC software or unique applications of ICAP or Atomic Absorption instruments in their own labs. Please send a brief title to Dr. Ronald Manabe, Thermo Jarrell Ash, 175 Jefferson Drive, Menlo Park, CA 94025. The registration fee for this seminar may be added to your RMC pre-registration payment.

ThermoSPEC, August 6, 1992 8:30-5:00 Fee: $35.00

Name:__________________________
Organization:____________________
Address:________________________
City, State, Zip_________________
Phone:_________________________ Fax:_____________________
Refund Policy: Full refunds will be made if requests are received on or before July 15, 1992.

BRUKER INSTRUMENT CORPORATION: Friday, August 6, 1992. For information on this vendor workshop call: Art Heiss (508) 663-7885.
SHOULD COURSES
(Sponsored by the Colorado Section of the ACS)

The Education Committee of the Colorado Section of the ACS is offering short courses in conjunction with the 34th Rocky Mountain Conference on Analytical Chemistry as described below. Registration forms are included following this page. The Radisson Hotel Denver has agreed to provide lodging for short course participants at the special conference rate. Please mention the 34th Rocky Mountain Conference on Analytical Chemistry when making reservations. All courses will be taught at the University of Colorado at Denver, in downtown Denver. Tuition will be refunded if course registration is canceled before July 10, 1992.

QUALITY ASSURANCE PRACTICES FOR THE ENVIRONMENTAL LABORATORY
Steve Callio
2 days: August 6-7, 1992
Tuition: member $350; non-member $400

BASIC ELECTRONICS FOR SCIENTISTS
Dr. James B. Calvert
2 days: August 6-7, 1992
Tuition: member $350; non-member $400

BASIC PRINCIPLES OF MASS SPECTROMETRY AND INTERPRETATION OF ORGANIC MASS SPECTRA
Dr. J.A. Zirrolli
3 days: August 5-7, 1992
Tuition: member $400; non-member $450

Registration deadline for all courses is July 10,1992. For more information contact:

Dr. Joseph A. Zirrolli  Marilyn Johnsen
National Jewish Center  University of Denver
Dept. of Pediatrics, K923  Dept. of Chemistry
1400 Jackson Street  OR  Denver, CO 80208
Denver, CO 80206  TEL 303-871-2580
TEL 303-398-1136  FAX 303-871-2587
FAX 303-398-1694
## SHORT COURSE REGISTRATION
Courses Sponsored by Colorado Section American Chemical Society
at the 34th Rocky Mountain Conference
Denver, Colorado

<table>
<thead>
<tr>
<th>Course</th>
<th>Member</th>
<th>Non-Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality Assurance Practices for the Environmental Laboratory</td>
<td>$350</td>
<td>$400</td>
</tr>
<tr>
<td>August 6-7, 1992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Electronics for Scientists</td>
<td>$350</td>
<td>$400</td>
</tr>
<tr>
<td>August 6-7, 1992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Principles of Mass Spectrometry and Interpretation of Organic Mass Spectra</td>
<td>$400</td>
<td>$450</td>
</tr>
<tr>
<td>August 5-7, 1992</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name: ____________________________________________________

Organization: ____________________________________________

Address: ________________________________________________

City, State, Zip: ________________________________________

Phone: ___________________ FAX: _______________________

Make checks payable to "Colorado Section ACS" and send payment with this form to:

Dr. Joseph A. Zirrolli  
Dept. of Pediatrics K923  
National Jewish Center  
1400 Jackson Street  
Denver, CO 80206  
Phone: (303) 398-1136  
FAX: (303) 398-1694
QUALITY ASSURANCE PRACTICES FOR THE ENVIRONMENTAL LABORATORY

Instructor: Steve Callio
August 6-7, 1992
Tuition: $350 member; $400 non-member

This two day short course is designed for laboratory analysts who require an introduction to quality assurance practices used in environmental measurements. The course starts with a discussion of basic statistical concepts required in QA, i.e., detection limits, confidence limits, determination of standard deviations; then the principles of quality assurance are explained and discussed in depth. These range from the preparation of duplicate and spiked samples, use of internal standards and standard reference materials, and instrument calibration to the role of the QA manager, training requirements and record documentation. Examples of the application of these procedures (nitrate, phosphate), ICP of metals, GC analyses; residual chlorine and fluoride determinations are then discussed. In addition to laboratory analysts, engineers and project officers who use laboratory-generated data in their programs and require a better understanding of how the data are obtained, will benefit from this course.

Faculty: Steve Callio, B.S., M.S., has more than 15 years of experience in Environmental Analytical Chemistry. He has worked with government and private testing laboratories and in the Laboratory Quality Assurance field. He has presented papers to EPA’s Contract Laboratory Program, the Symposium on Solid Waste Testing and published with ASTM and Atomic Spectroscopy.

For short course registration by July 19, 1992, use the form preceeding the course description.
BASIC ELECTRONICS FOR SCIENTISTS

Instructor: Dr. James B. Calvert
August 6-7, 1992
Tuition: $350 member; $400 non-member

This two day intensive course will take the student from the basic physics of electronics and electrical circuits to the design and trouble shooting of transistor and op-amp circuits. No previous knowledge of electronics is assumed. This course will be both quantitative and experimental. You will work with a kit of components, making circuits and testing them with electronic instruments. You will become familiar with common electronic components and learn how to assemble them. The course will familiarize you with fundamental concepts useful in electronics such as impedance, single-time constants, feedback and working models for semiconductor devices. These concepts will allow you to understand and use electronics with increased confidence. The student should bring a digital multimeter or equivalent to the course, so that they will become familiar with the use of their own instrument. Some multimeters will be available for students who do not bring their own.

Faculty: Dr. James B. Calvert, P.E., is Associate Professor of Physics and Engineering at the University of Denver. He prepared and presented courses in electronics and microcomputers there since 1979 and has over 20 years of university teaching experience. Dr. Calvert's research and interests have been in ultrasonics, optics, atomic and molecular structure, quantum mechanics, analog integrated circuits and history of technology. He is a registered professional engineer in the state of Colorado.

For short course registration by July 19, 1992, use the form preceding the course description.
BASIC PRINCIPLES OF MASS SPECTROMETRY AND INTERPRETATION OF ORGANIC MASS SPECTRA

Instructor: J.A. Zirrolli, Ph.D.
August 5-7, 1992
Tuition: $400 member; $450 non-member

This three day course will describe the principles of modern mass spectrometry and apply them to the identification of organic compounds. Sample introduction methods (GC, LC, vapor, direct probe), ionization processes (positive, negative, FAB, chemical, electronic), mass analysis and detection will be discussed with emphasis on molecular ion analysis and simple fragmentation processes. The course will develop an approach to the determination of elemental composition and diagnostic fragmentation patterns, and the student will become familiar with the mass spectra characteristic of common organic compound classes, drugs, pesticides and pollutants. The course is based upon and uses as a reference the text, Interpretation of Organic Mass Spectra, Third Edition by F.W. McLafferty, University Science Books, 1980, which will be provided.

Faculty: Dr. Joseph A. Zirrolli is a Research Associate in the Department of Pediatrics and Research Director of the Mass Spectrometry Center at the National Jewish Center for Immunology and Respiratory Medicine at Denver. He is a member of the American Chemical Society and the American Society of Mass Spectrometry.

For short course registration by July 19, 1992, use the form preceding the course description.
Organizers of the 34th Rocky Mountain Conference

Conference Chairman - Marvin C. Goldberg, U.S. Geological Survey, Denver Federal Center, PO Box 25046, MS 424, Lakewood, CO 80225, (303) 236-4728

Program Chairman Pro Tern - Carlos Arozarena, US Geological Survey 5293 Ward Road Arvada, CO 80002, (303)467-8035

Exhibits - Jim Parker, Manville Tech Center, Mail Stop R-38 PO Box 5108, Denver, CO 80217, (303) 978-5481

Registration - Joe Broadus US Geological Survey, 6293 B Ward Road, Arvada, CO 80002, (303) 236-5345
Maggie Chaney - US Geological Survey, 6293 B Ward Road, Arvada, CO 80002, (303) 236-5345

Treasurer - Glenda Brown, US Geological Survey, Mail Stop 407, 5293 Ward Road, Arvada, CO 80002, (303) 236-5345

Publicity - Pat Sulik, Rocky Mountain Instrumental Labs, 456 S. Link Lane, Ft. Collins, CO 80524 (303)530-1169

Hotel Events - Bob Conway - PO Box 6167, Denver, CO 80206 (303) 624-4174

Staff - Steve Callio, US Environmental Protection Agency, 949 18th Street, Suite 500, Denver, CO 80202
Cathy Honda, Gates Rubber Company, PO Box 5887, Denver, CO 80217
Vanessa Fishback, 7578 Aberdeen Way, Boulder CO 80301

Audio Visual - Mark Brugh, E G & G - Rocky Flats, PO Box 464, Building 881, Golden, CO 80402

Mailing List - Carol Gies, E G & G - Rocky Flats, PO Box 464, Building 881, Golden, CO 80402

Tours - Hanna Goldberg, 5741 East Fair Place, Englewood, CO 80111, (303)779-8147
Symposia Chairwomen and Chairman

Atmospheric Spectroscopy - Gary Rayson, Department of Chemistry, New Mexico State University, Las Cruces, NM 88003, (503) 646-5839

Chromatography - Denise Kent, Millipore Corporation, Waters Chromatography Division, 1161 Baca Road, Conifer, CO, (800) 532-2708 ext. 2168

Electrochemistry - Bruce Parkinson, Colorado State University, Department of Chemistry, Ft. Collins, Co 80523, (303) 491-0504

Electron Paramagnetic Resonance - Sandra Eaton, University of Denver, Chemistry Department, Denver, CO 80208, (303) 871-3102

Gareth Eaton, University of Denver, Chemistry Department, Denver, CO 80208, (303) 871-2980

Environmental Chemistry - Lynda Faires, USGS, 5293 Ward Road, Arvada, CO 80002, (303) 467-8078

FTIR/NIR/RAMAN Spectroscopy - Abdul Chughtai, University of Denver, Chemistry Department, Denver, CO 80208, (303) 871-4404

General Posters - Mary Cast, U.S. Geological Survey, 5293 Ward Rd. Arvada, CO 80002 (303) 467-8044

Hazardous Waste - Laura Peitersen, University of Wyoming, Department of Chemistry, Box 3838 University Station, Laramie, WY 82071-3838 (307) 733-4363

Laboratory Total Quality Management - Erie A. Lewis, LEADS Corporation, 1240 Clear Creek Road, Evergreen CO 80439 (303) 567-2681

Luminescence - DeLyle Eastwood - Lockheed Engineering, 1050 East Flamingo Road, Suite 242, Las Vegas, NV 89119, (702)734-3287

Robert Hurtubise - University of Wyoming, Department of Chemistry, Box 3838 University Station, Laramie, WY 82071 (307) 766-6241

Mass Spectrometry - Joseph Zirrolli, Department of Pediatrics, K923, National Jewish Center, Denver, CO 80206, (303)398-1853

Steve Zaugg, USGS, 5293 Ward Road, Arvada, CO 80002, (303) 467-8207

Nuclear Magnetic Resonance - Hellmut Eckert, University of California, Santa Barbara, Department of Chemistry, Santa Barbara, CA 93106 (805) 893-8163

Pharmaceutical Analysis - Patricia Sulik, Rocky Mountain Instrumental Labs, 456 S. Link Lane, Ft. Collins, CO 80524 (303)530-1169

Robert Lantz, Rocky Mountain Instrumental Labs, 456 S. Link Lane, Ft. Collins, CO 80524 (303) 530-1169

Quality Assurance - William Shampine, USGS, PO Box 25046, MS 401, Denver Federal Center, Denver, CO 80225 (303)236-1940

Victor Janzer, 1873 S. Robb Street, Denver, CO 80232 (303) 980-5626

Robotics - Richard Pfeiffer, US Department of Agriculture, National Soil Tilth Laboratory, 2150 Pammel Drive, Ames, IA 50011 (515) 294-0136
SYMPOSIUM ON ATOMIC SPECTROSCOPY
Organized by Gary D. Rayson

Tuesday, August 4, 1992

KEYNOTE SPEAKER

8:30 RECENT ADVANCES IN ANALYTICAL CHEMICAL MEASUREMENTS IN MICROWAVE PLASMAS. Charles B. Boss, Department of Chemistry, North Carolina State University, Raleigh, NC.

9:10 OPEN FOCUSED MICROWAVE DIGESTION SYSTEM FOR PREPARATION OF BIOLOGICAL SAMPLES FOR INDUCTIVELY COUPLED PLASMA SPECTROMETRY. A. Krushevska, L. Martines, C. Amarasiriwaradena and R.M. Barnes, Department of Chemistry, Lederle Graduate Research Center, University of Massachusetts, Amherst, MA 01003-0035.

9:30 THE DETERMINATION OF LEAD IN WINE, FORTIFIED WINE AND GRAPE JUICE BY GRAPHITE FURNACE ATOMIC ABSORPTION SPECTROMETRY. J.E. Schelzel, Thermo Jarrell Ash, 175 Jefferson Drive, Menlo Park, CA 94025.

9:50 BREAK


11:00  DETERMINATION OF THE ELEMENTAL COMPONENTS OF LITHIUM ALUMINATE CERAMICS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROSCOPY.  
N. J. Hotz and W. F. Bauer, Idaho National Engineering Laboratory, EG&G Inc., PO Box 1625, Idaho Falls, ID 83415.

11:20  AN EVALUATION OF THE INDUCTIVELY COUPLED PLASMA AS A SOURCE FOR ATOMIC ABSORPTION MEASUREMENTS.  G. D. Rayson, Chemistry Department, New Mexico State University, Las Cruces, NM 88803-0001

12:00  LUNCH

Tuesday, August 4, 1992

INVITED SPEAKER

1:40  THE SEARCH FOR SELECTIVE EXCITATION MECHANISMS IN THE INDUCTIVELY COUPLED PLASMA.  
P. B. Farnsworth, C. M. Ogilvie, and M. C. Asplund, Chemistry Department, Brigham Young University, Provo, UT 84602.

2:20  Sc AND Mg ION/ATOM RATIOS AS DIAGNOSTIC TOOLS FOR THE DISCRIMINATION OF EIE AND PHYSICAL TRANSPORT EFFECTS DUE TO HIGH CONCENTRATIONS OF Ca, Mg AND Na USING ULTRASONIC NEBULIZATION.  
I. B. Brenner and S. Erlich, Geological Survey of Israel, 30 Malkhe Israel St., Jerusalem, 95501, Israel.

2:40  AN EXCITATION TEMPERATURE MEASUREMENT IN THE ICP INDEPENDENT OF LTE ASSUMPTIONS.  G.D. Rayson and M. Durate, Chemistry Department, New Mexico State University, Las Cruces, NM 88003.

3:00  BREAK

3:30  APPLICATION OF A SOLID STATE DETECTOR FOR THE OBSERVATION OF ATOMIC EMISSION FROM AN ICP.  
3:50  **DETERMINATION OF Li AND TRACE ELEMENTS IN LITHIUM ALUMINATES USING ELECTROTHERMAL FURNACE ATOMIZATION WITH AA/ICP DETECTION.**
E. B. McNew, W. F. Bauer, and D. D. Siemer, Idaho national Engineering Laboratory, EG&G Inc., PO Box 1625 Idaho Falls, ID 83415.

4:10  **ANALYSIS OF ULTRATRACE CONTAMINANTS IN A HIGH TUNGSTEN MATRIX.** Sarah McGinty, Serapio Ayala, Steve Govorchin, and Steven Hughes, Bandgap Technology, 325 Interlocken Parkway, Broomfield, CO 80021.

---

**SYMPOSIUM ON CHROMATOGRAPHY**

Organized by Denise Kent

**Tuesday, August 4, 1992**

8:25  **INTRODUCTORY REMARKS.** Denise Kent

8:30  **A TWO-CHANNEL SULFUR AND NITROGEN PHOSPHORUS DETECTOR FOR GC.** Thomas Ryerson, Robert Barkley, and R.E. Sievers, University of Colorado, Boulder, CO.

9:00  **THERMAL DESORPTION-GC-MS DETERMINATION OF THE CHEMICAL COMPOSITION OF SOLID PRODUCTS OF JET FUEL OXIDATION.** William D. Schulz, Eastern Kentucky University, Richmond, KY.


10:00 **PHOTOSELECTIVE SEPARATION OF OLEFINS FROM SATURATED HYDROCARBONS.** David J. Semin and Kathy Rowlen, University of Colorado, Boulder, CO.

10:30 **BREAK**
11:00 IMPROVED HPLC/POST-COLUMN TECHNIQUES FOR RUGGED CARBAMATE ANALYSIS. Michael Dong and Craig Sellman, Perkin-Elmer Corporation, Norwalk, CT.

Symposium of Electrochemistry
Organized by Bruce A. Parkinson

Monday, August 3, 1992
Bruce Parkinson, Presiding

9:00 PHOTOELECTROCHEMISTRY OF LUMINESCENT POROUS SILICON. Michael J. Sailor, Grace M. Credo, Conine L. Curtis, Vincent V. Doan, Julie L. Heinrich and Jeffrey M. Lauerhaas, University of California San Diego, San Diego, CA.

9:30 PHOTOELECTROCHEMISTRY AND RAMAN SPECTROSCOPY OF COPPER THIOCYANATE FILMS. N.R. de Tacconi, Y.Son and Krishnan Rajeshwar, University of Texas at Arlington, Arlington, TX.

9:50 THE PHOTODEPOSITION OF COPPER ON TITANIUM DIOXIDE AQUEOUS SUSPENSIONS. Nancy S. Foster and Carl Koval, University of Colorado, Boulder, CO.

10:10 BREAK

10:20 FROM NANOMETER-SIZED METAL DOTS TO FRANCES MOTT. Reginald M. Penner, W. Li, M. Barsky and J. A. Virtanen. University of California, Irvine, CA.

10:50 PREPARATION OF MICROPOROUS ALUMINUM FILMS FOR USE AS TEMPLATES FOR THE SYNTHESIS OF NANOMETER SIZED PARTICLES. Jon A. Stockhart, G. Louis Hornyak, Colby A. Foss, Jr., and Charles R. Martin, Colorado State University, Ft. Collins, CO.

11:30 SPECTROELECTROCHEMISTRY OF A RUTHENIUM-COBALT SYSTEM CONTAINING THREE BRIDGING BISBIPYRIDYL ALKANE LIGANDS. Sue Ferrere and C. M. Elliot. Colorado State University, Ft. Collins, CO.

11:50 NOVEL LINKED-BIPYRIDINES AND TERPYRIDINES FOR CATALYTIC REDOX POLYMER MODIFIED ELECTRODES. Daniel L. Feldheim, Christopher J. Baldy and C. M. Elliot. Colorado State University, Ft. Collins, CO.

Monday, August 3, 1992
Afternoon Session, Reginald Penner, Presiding

1:30 BIMETALLIC ALLOYS AS LCEC DETECTORS FOR CARBOHYDRATES. Theodore Kuwana, Peifang F. Luo and Juan Marioli. University of Kansas, Lawrence, KA.

2:00 THE USE OF POLYPYRROLE AND DOPED-POLYPYRROLE FILMS FOR THE REMOVAL OF IONIC SOLUTION SPECIES. Douglas E. Wedman and Carl Koval. University of Colorado, Boulder, CO.


2:40 TEMPLATE SYNTHESIZED POLANALINE MICROTUBULES. Raniani P. Vinod and Charles R. Martin. Colorado State University, Ft. Collins, CO.

3:00 BREAK

3:10 INFLUENCE OF SUPPORTING ELECTROLYTE ACTIVITIES ON ELECTRODE POTENTIALS MEASURED FOR MODIFIED ELECTRODE SURFACES. Jody G. Redepenning, Benjamin Miller and Sandra Burnham. University of Nebraska, Lincoln, NE.

30
3:30 NUCLEOPHILIC BONDING OF AMINES TO CARBON FIBER SURFACES TO IMPROVE THE ADHESION OF COMPOSITES. Chien-Ming Peng and Dan Buttry, University of Wyoming, Laramie, WY.

3:50 HIGH FREQUENCY AC VOLTAMMETRY. A.S. Baranski and K. Winkler, University of Saskatchewan, Saskatoon, Saskatchewan.

4:10 CHLOROALUMINATE MELTS TRULY LEWIS NEUTRAL? Thomas L. Riechel and John S. Wilkes, United States Air Force Academy, Colorado Springs, CO.

4:30 DECHLORINATION REDUCTANT MONITORING BY COULOMETRY. CO. Huber and N. Ekkad, University of Wisconsin, Milwaukee, WI.

SYMPOSIUM ON ENVIRONMENTAL CHEMISTRY
Organized by Lynda M. Faires
SPONSORSHIP OF THIS SYMPOSIUM BY FINNIGAN MAT IS GRATEFULLY ACKNOWLEDGED

Monday, August 3, 1992
Edward T. Furlong, Presiding

8:40 NEW INNOVATIONS IN PURGE AND TRAP: THE GUIDE TO INCREASED PRODUCTIVITY IN YOUR LABORATORY. Tammy J. Cappel and Anne S. Williams, Tekmar Company.

9:00 CHARACTERIZING TRIBUTARY LOADINGS OF ORGANIC SUBSTANCES TO CHESAPEAKE BAY: APPLICATION OF LARGE SAMPLE LIQUID-SOLID EXTRACTION TECHNIQUES. Gregory D. Foster, Katrice Lippa, and Tzyy-Heng Shawn, George Mason University.


10:00 BREAK

10:30 INVITED SPEAKER IN ENVIRONMENTAL MASS SPECTROMETRY. ENVIRONMENTAL APPLICATIONS OF LIQUID CHROMATOGRAPHY-PARTICLE BEAM MASS SPECTROMETRY. Thomas D. Behymer, U.S. Environmental Protection Agency.


12:00 LUNCH

Monday, August 3, 1992
Charles J. Patton, Presiding

1:00 SELECTIVE EXTRACTION OF ALUMINUM FROM CANADIAN DRINKING WATER SUPPLIES USING CHELEX-100. Jean-Charles Meranper, National Health and Welfare, Canada

1:20 SILVER RECOVERY OF ENVIRONMENTAL WATER SAMPLES USING TEMPERATURE CONTROLLED MICROWAVE SAMPLE PREPARATION. Elaine T. Hasty and W. Gary Engelhart, CEM Corporation.

2:00 SAFE DRINKING WATER ACT UPDATE: RADON-TECHNOLOGIES, RISK REDUCTION, COSTS. Maria W. Tikkanen. Association of California Water Agencies.

2:20 APPLICATION OF ICP-MS TO THE ANALYSIS OF TRACE RADIO NUCLIDES IN ENVIRONMENTAL SAMPLES. Rob Henry. Fisons/VG Instruments.

2:40 BREAK


4:30 31P-NMR STUDY OF THE INTERACTION OF ELP+ WITH TRIBUTYL PHOSPHATE. Donna S. Smith, Cynthia J. Hargell, Northern Arizona University.
Tuesday, August 4, 1992
William T. Foreman, Presiding


8:50 ANALYSIS OF VOLATILE ORGANIC COMPOUNDS IN AIR SAMPLES UTILIZING ADSORBENT TRAPS AND CANISTERS. Anne S. Williams, Tekmar Company.

9:10 VOC BY EPA METHOD 502.2. A STUDY OF ALTERNATIVE PRESERVATION. Yvonne Herman, Colorado Department of Health.

9:30 SOIL VAPOR SURVEY SURROGATES. Elizabeth Sexton and William Whiton, GEO, Inc.

9:50 A PROPOSED ANALYTICAL METHOD TO DETERMINE TOTAL PETROLEUM HYDROCARBONS IN SOIL AND GROUND WATER. Donald F. Harrington, Colorado Department of Health.

10:10 TECHNIQUES FOR IMPROVING SENSITIVITY IN HEADSPACE ANALYSIS. Tammy J. Cappel, Tekmar Company.

10:30 BREAK

11:00 INVITED SPEAKER IN ENVIRONMENTAL MASS SPECTROMETRY. SOLVING ENVIRONMENTAL ANALYTICAL PROBLEMS USING ADVANCED MASS SPECTROMETRY TECHNIQUES. M. Judith Charles, University of North Carolina at Chapel Hill.

12:00 LUNCH
Tuesday, August 4, 1992
Larry G. Anderson, Presiding

1:00 OZONE AS A SINK FOR ATMOSPHERIC CARBON AEROSOLS. Sherry L. Stephens, Jack G. Calvert, and John W. Birks, University of Colorado, CIRES, NCAR.

1:20 EMISSIONS OF DIMETHYL SULFIDE BY MARINE PHYTOPLANKTON AND IMPLICATIONS FOR CLIMATE CHANGE. Priscilla L. Burrow and John W. Birks, University of Colorado, CIRES.

1:40 BROMOFORM EMISSION FROM ARCTIC ICE ALGAE: A MAJOR SOURCE OF ATMOSPHERIC ORGANIC BROMINE. Paul T. Buckley and William T. Sturges, University of Colorado, CIRES.

2:00 TREND ANALYSES OF AMBIENT CARBON MONOXIDE DATA FROM DENVER. Mary Jo Aloi, Larry G. Anderson, and John A. Lanning, University of Colorado at Denver.

2:20 AMBIENT FORMALDEHYDE AND ACETALDEHYDE CONCENTRATIONS IN DENVER. Regina A. Barrell, Larry G. Anderson, and John A. Lanning, University of Colorado at Denver.


3:00 FORMALDEHYDE AS AN INDICATOR OF INDOOR AIR QUALITY. David L. Volkel, Larry G. Anderson, and John A. Lanning, University of Colorado at Denver.

3:20 FLOW TUBE KINETICS & THE CHEMISTRY OF THE CIO DIMER. David O. De-Haan, John W. Birks, University of Colorado, CIRES.

35
15th International EPR Symposium
Organized by Sandra Eaton and Gareth Eaton

Monday, August 3, 1992
Session I - Harold M. Swartz, Presiding

8:30 OPENING REMARKS. S. S. Eaton

8:40 PRESENTATION OF INTERNATIONAL EPR SOCIETY
AWARD by Harold M. Swartz, President, to George Feher.

8:50 AWARD ADDRESS. IDENTIFICATION AND
CHARACTERIZATION OF THE REACTANTS IN THE
PRIMARY PROCESS OF BACTERIAL PHOTOSYNTHESIS.
George Feher, University of California at San Diego.

9:15 EPR/ENDOR TECHNIQUES FOR SMALL BIOLOGICAL
SAMPLES. R. Isaacson, University of California at San Diego.

9:40 STOCHASTIC ENDOR. W. Brueggemann, J. R. Niklas.
University of Paderborn.

10:10 BREAK

10:45 PULSED AND CW ENDOR AT 9 AND 35 GHz. C. E. Davoust,
P. E. Doan, V. J. DeRose, C. Fan, R. J. Gurbiel,
B. M. Hoffman, A. Houseman, Northwestern University.

11:30 COORDINATION OF VANADYL (V02+) ION BOUND
TO S-ADENOSYLMETHIONINE SYNTHETASE AS
DETERMINED BY ESEEM AND ENDOR MEASUREMENTS.
R. LoBrutto, C. Zhang, G. D. Markham, Arizona State
University, Northeastern University, and Institute for Cancer
Research.

12:00 LUNCH
Monday, August 3, 1992
Session II - Electron spin echo envelope modulation

1:30 Plenary Lecture - NEW CONCEPTS IN PULSED EPR SPECTROSCOPY: FID-DETECTED HOLE BURNING AND SELECTIVE DETECTION. A. Schweiger, ETH-Zentnem.

2:15 SINGLE CRYSTAL ELECTRON SPIN ECHO ENVELOPE MODULATION STUDIES OF MODELS FOR COPPER SITES IN PROTEINS. M. J. Colaneri, J. Peisach, Albert Einstein College of Medicine.

2:45 BREAK

3:15 MULTIDIMENSIONAL AND MULTIFREQUENCY ESEEM STRATEGIES IN THE STUDY OF DISORDERED S=1/2, 1=1/2 OR 1=1 SPIN SYSTEMS. E. J. Reijerse, University of Nijmegen.

4:00 ZERO FIELD SPLITTING EFFECTS ON THE ESEEM OF Mn(II). A. R. Coffino, J. Peisach, Albert Einstein College of Medicine.

4:30 Business Meeting - International EPR Society

Tuesday, August 4, 1992
Session III - Materials Science

8:30 ELECTRON SPIN RESONANCE COMPARISON OF PARAMAGNETIC CENTERS IN SILICON DIOXIDE, NITRIDED OXIDE, AND REOXIDIZED NITRIDED OXIDE FILMS. J. T. Yount, P. M. Lenahan, G. J. Dunn, Pennsylvania State University.


37
9:20  MICROWAVE ABSORPTION BY SINGLE AND POLY
      CRYSTALS OF Bi, Sr, CaCu2O,,.  S. K. Misra, M. Kahrizi,
      Concordia University.

9:45  BREAK - please take time to visit the exhibits

10:40  EPR AND FLN-ASSISTED OPTICAL ZEEMAN
      SPECTROSCOPY OF TETRA-OXO CHROMIUM(V) NEAR
      INFRARED LASER MATERIALS. T. S. Rose, R. A. Fields,
      M. H. Whitmore, D. J. Sineel. Aerospace Corporation and
      Harvard University.

11:10  MODELLING OF DEFECT PROPERTIES OF SILVER AND
      ITS IONS IN ALKALI FLUORIDES. R. Pandey, S. Veliah,
      C. Yu, S. A. Marshall, Michigan Technological University.

11:35  ELECTRON PARAMAGNETIC RESONANCE OF METAL
      ATOMS IN FULLERENES. M. Hoinkis, C. Yannoni,
      M. deVries, R. Johnson, D. Bethune, J. Salem, M. S. Crowder,
      IBM Research.

Tuesday, August 4, 1992
Session IV

1:30  NUCLEAR TRANSITION- AND HYPERFINE FREQUENCIES
      MEASURED WITH FID-DETECTED HOLE-BURNING EPR.
      T. Wacker, A. Schweiger, Swiss Federal Institute of Technology.

1:50  ENDOR OF NON-HEME Fe CENTERS IN PROTEINS.
      C. E. Davoust, P. E. Doan, V. J. DeRose, C. Fan,
      R. J. Gurbiel, B. M. Hoffman, A. Houseman, Northwestern
      University.

2:10  USING SATURATION-RECOVERY EPR TO MEASURE
      DISTANCES AND EXCHANGE COUPLINGS IN PROTEINS.
      D. J. Hirsh, W. F. Beck, J. B. Innes, J. B. Lynch, L. Que, Jr.,
      G. W. Brudvig, Yale University.

2:30  BREAK
Session V - posters, S. S. Eaton, Presiding

3:00 - 4:00 AUTHORS PRESENT FOR POSTERS LABELED A
4:00 - 5:00 AUTHORS PRESENT FOR POSTERS LABELED B


B  SIMULATION AND INTERPRETATION OF MULTIFREQUENCY EPR SPECTRA FROM THE Mn(III)Mn(IV) STATE OF THE CATALASE FROM L. PLANT ARUM. A. Huddy, G. S. Waldo, R. H. Sands, J. E. Penner-Hahn, University of Michigan.


B  SARCOPLASMIC RETICULUM IS PROTECTED FROM OXIDATION BY THE FORMATION OF MIXED DISULFIDES. C. Coan, J.-Y. Ji, K. Hideg, R. Mehlhorn, University of the Pacific, University of Pecs, and Lawrence Berkeley Laboratory.

B SIMULTANEOUS MULTI-SITE EPR SPECTROSCOPY AT L BAND. A. Smirnov, S. W. Norby, H. M. Swartz, R. B. Clarkson, University of Illinois.

A MEASUREMENT OF MOLECULAR OXYGEN CONCENTRATIONS IN THE EXTRACELLULAR BODY WATER OF TUMORS OF LIVE MICE WITH IN VIVO SPIN LABEL EPR OXYMETRY. H. J. Halpern, C. Yu, M. Peric, E. Barth, University of Chicago.

B SPECTRAL FITTING AND NOISE REDUCTION IN THE EVALUATION OF EPR SPECTRAL PARAMETERS. C. Yu, H. J. Halpern, M. Peric, B. Bales, University of Chicago and California State University - Northridge.

A AN ELECTRON SPIN RESONANCE SPIN TRAPPING STUDY OF FREE RADICAL INVOLVEMENT IN GRAFT FAILURE FOLLOWING ORTHOTOPIC LIVER TRANSPLANTATION IN THE RAT. H. D. Connor, W. Gao, R. G. Thurman, R. P. Mason, Kentucky Wesleyan College, University of North Carolina, and NTEHS.

B IN SITU RADIOLYSIS ESR STUDIES OF HYDROXYALKYL RADICAL SPIN TRAPPING USING 2-METHYL-2-NITROSOPROPANE. K. P. Madden, H. Taniguchi, University of Notre Dame.

A TRAPPING OF SINGLET OXYGEN GENERATED BY PHOTOSENSITIZED RIBOFLAVIN WITH TMPD AND THE RELATED COMPOUNDS. T. Ogata, H. Kamada, L. J. Berliner, Yamagata University, Yamagata Technopolis and Ohio State University.
B TRAPPING OF THIYL RADICALS PRODUCED BY PHOTOLYSIS OF DISULPHIDES BY 2,4,6-TRI-TERT-BUTYLNITROSOBENZENE AND 5,5 DIMETHYL-1-PYRROLINE-N-OXIDE. P. Stillman, B. Mile, and C. C. Rowlands, University of Wales College of Cardiff.

A IN VIVO ESR STUDIES OF NITROSOBENZENE FREE RADICALS FORMED IN WHOLE MICE AND EXCISED MUSCLE AT L- AND X-BAND. B. Zhao, H. Fujii, J. Koscielniak, L. J. Berliner, Ohio State University.


A THE APPLICATION OF EPR DOSIMETRY FOR RADIOTHERAPY AND RADIATION PROTECTION. R. Kudynski, J. Kudynska, H. A. Buckmaster, Foothills Hospital, Calgary and University of Calgary.


A EPR OF A FREE RADICAL IN Ceo: EFFECT OF O2. M. D. Pace, T. C. Christidis, J. J. Yin, and J. Milliken, National Biomedical ESR Center, Naval Research Laboratory, and American University of Beirut.

A KINETIC STUDIES OF ALKYL NITRITES IN ALCOHOL SOLVENT BY ELECTRON SPIN RESONANCE SPECTROSCOPY. A. Huang, W. H. Lee, W. Y. Liu, Yuan-Tze Institute of Technology, Taiwan.


A AN INTERPRETATION OF T1 and T2 IN WIDE LINE MAGNETIC RESONANCE: OBTAINING T2 FROM NITROXIDE SPIN LABELS. B. H. Robinson, C. Mailer, and D. A. Haas, University of Washington.


A Gd3+ EPR STUDY OF NH4Ce(SO4)2.4H2O and NH4Sm(SO4)2.4H2O SINGLE CRYSTALS: STRUCTURAL PHASE TRANSITIONS AND SYSTEMATICS OF ZERO-FIELD SPLITTING PARAMETER IN Gd3+ DOPED ISOSTRUCTURAL NH4R(SO4)2.4H2O (R = La, Ce, Pr, Nd, Sm, Eu) SINGLE CRYSTALS. S. K. Misra, X. Li, Concordia University.
B 170 HYPERFINE INTERACTION AND STRUCTURAL DISTORTION STUDIES OF Ge0 CENTRES IN CRYSTALLINE Si0. R. J. McEachern, J. A. Weil. University of Saskatchewan.

A THEORY OF MULTIPLE-QUANTUM EPR. H. S. Mchaomah. J. S. Hyde, Medical College of Wisconsin.

B MULTIQUANTUM ELECTRON NUCLEAR DOUBLE RESONANCE. H. S. Mchaourab, T. Christidis, J. S. Hyde, Medical College of Wisconsin.


Wednesday, August 5, 1992
Session VI - Biological Applications

8:30 IN SEARCH OF THE SPIN HAMILTONIAN PARAMETERS OF EXCHANGE COUPLED Mn(III) DIMERS: MODELS FOR THE PHOTOSYNTHETIC OXYGEN EVOLVING Mn CLUSTER, O. Burghaus, V. K. DeRose, M. P. Klein, Lawrence Berkeley Laboratory and Northwestern University.

9:00 PULSED EPR STUDIES OF PHOTOSYNTHETIC OXYGEN EVOLUTION. R. D. Britt, University of California, Davis.


10:00 BREAK
10:30  POSSIBLE ROLE OF FREE RADICAL FORMATION IN CLOZAPINE (CLOZARIL)-INDUCED AGRANULOCYTOSIS. R. P. Mason, R. V. Lloyd, V. Fischer, NIEHS and Sandoz Pharma Ltd.

11:00  KINETIC STUDY OF CELL RESPIRATION USING NEW OXYGEN-SENSITIVE SOLID STATE EPR PROBES. A. Smirnov, S. W. Norby, R. B. Clarkson, H. M. Swartz, University of Illinois.


12:00 LUNCH

Wednesday, August 5, 1992
Session VII - Biological Applications

1:30  SUBTLE INTERACTIONS OF HIRUDIN ANALOGS WITH BOVINE AND HUMAN THROMBIN: ESR AND FLUORESCENCE STUDIES. J. K. Rowand, L. J. Berliner, Ohio State University.


2:10  ESEEM STUDIES OF MEMBRANE-BOUND IRON-SULFUR PROTEINS in situ. J. K. Shergill and R. Cammack, King's College London.

2:30  BREAK
Session VUI - Posters, S. S. Eaton, Presiding

3:00 - 4:00 AUTHORS PRESENT FOR POSTERS LABELED C
4:00 - 5:00 AUTHORS PRESENT FOR POSTERS LABELED D

C ESEEM OF "0 NUCLEI IN METAL-LIGAND COMPLEXES. C. T. Farrar, D. J. Singel, Harvard University.


D ELECTRONIC g-FACTOR MEASUREMENT FROM FIELD-SWEPT ENDOR PATTERNS. W. H. Nelson, J. Shao, Georgia State University.

C 'H PULSED ENDOR. C. Fan, P. E. Doan, V. J. DeRose, B. M. Hoffman, Northwestern University.


C GRAPHICAL REPRESENTATIONS OF POLYCRYSTALLINE ENDOR. P. E. Doan, B. M. Hoffman, Northwestern University.

C MOLECULAR TRAJECTORY EPR SIMULATIONS OF NITROXIDE DYNAMICS AT MULTIPLE FREQUENCIES. F. P. Auteri, D. J. Schneider, J. Busch, R. L. Belford, R. B. Clarkson, University of Illinois.


C COMPARISON OF PERFORMANCE OF MEDICAL ADVANCES 4 mm DIAMETER LOOPGAP RESONATOR WITH A TE$_{102}$ EPR CAVITY. C. Mailer, D. A. Haas, B. H. Robinson, University of Washington.

D LIQUID COOLED CWENDOR COIL WITH DIELECTRIC RESONATOR AT 9 GHz OPTIMIZED FOR SMALL AQUEOUS SAMPLES. R. A. Isaacson, G. Feher, University of California - San Diego.

C OPTIMIZATION OF L-BAND MICROWAVE BRIDGES FOR MAXIMUM SENSITIVITY IN IN-VIVO EXPERIMENTS. J. Koscielniak, L. J. Berliner, Ohio State University.

D DEVELOPMENT OF SURFACE TYPE LOOP-GAP RESONATOR WITH AN ELECTRIC SHIELD. M. Ono, H. Kamada, Yamagata University and Yamagata Technopolis Foundation.

C SSB RECEIVING ESR. M. Ono, N. Kobayashi, H. Susaki, K.-C. Hsieh, K. Yokoto, Yamagata University.

C VARACTOR TUNING OF THE COUPLING OF EPR RESONATORS TO TRANSMISSION LINES. G. Rinard, R. W. Ouine, G. R. Eaton, University of Denver.


C SIMULATION-AIDED ANALYSIS OF COMPLEX EPR POWDER SPECTRA. L. Gonzalez-Tovany, V. Beltran, Universidad National Autonoma de Mexico.


C FUSINITE AS A POSSIBLE EPR STANDARD. T. Smirnova, R. B. Clarkson, N. Vahidi, A. Smirnov, R. L. Belford, University of Illinois.

D THE LOW TEMPERATURE OXIDATION PROCESS IN AN ALBERTA hv BITUMINOUS COAL AS MONITORED USING 9 GHz CW-EPR Mn2+ HPS SPECTRAL PARAMETERS. J. Kudynska, H. A. Buckmaster, University of Calgary.

C THE NON-CENTRAL EPR SPECTRA OF Mn2+ IMPURITY IONS IN POLYCRYSTALLINE CALCITE. Y.-P. Zhang, H. A. Buckmaster, University of Calgary.

C THE INTENSITY OF THE EPR SPECTRAL FORBIDDEN TRANSITIONS IN POLYCRYSTALLINE SAMPLES. Y.-P. Zhang, H. A. Buckmaster, University of Calgary.

D A RELATIVISTIC EFFECTIVE HAMILTONIAN FOR Gd3+ (4f7, 8s7/2) IN LATTICES OF VARIOUS SYMMETRIES. H. A. Buckmaster, R. Chatterjee, University of Calgary.


D EPR AND MOSSBAUER SINGLE CRYSTAL EXPERIMENTS INVOLVING LOW SYMMETRY SITES. W. C. Tennant, DSIR Chemistry, New Zealand.

Wednesday evening - Open House, University of Denver, EPR Laboratory

Thursday, August 6, 1992
Session DC - Techniques

8:30 Plenary Lecture MULTI-QUANTUM EPR. J. S. Hyde. Medical College of Wisconsin.


9:50 BREAK


10:50 ORGAN SPECIFIC PHARMACODYNAMICS WITH IN VrVO EPR IMAGING. H. J. Halpern, C. Yu, E. Barth, M. Peric, W. E. Boisvert, M. W. Makinen, S. Pou, G. M. Rosen, University of Chicago and University of Maryland.
11:25  THE USE OF EPR TO MEASURE TEMPERATURE IN VIVO. H. M. Swartz, K. J. Liu, J. C. Chato, M. W. Grinstaff, K. S. Suslick, Dartmouth Medical School and University of Illinois.

12:00  LUNCH

Thursday, August 6, 1992
Thursday afternoon - Broker user's meeting. Please contact Dr. Art Heiss if you wish to participate.

NOTE: Poster presenters are requested to display their posters from Monday morning to Thursday afternoon to permit time for browsing.

Friday, August 6, 1992 - Workshop on the Future of EPR Instrumentation.

FTIRINIRIRAMAN SPECTROSCOPY SYMPOSIUM
Organized by A.R. Chughtai

Monday, August 3, 1992

8:30  INTRODUCTION. A. R. Chughtai, Chairperson.

8:35  GUEST SPEAKER
THE ART OF ATMOSPHERIC INFRARED MEASUREMENTS. William G. Fatelev, Department of Chemistry, Kansas State University and Editor-in Chief, Applied Spectroscopy, PO Box 688, Manhattan, KS 66502.

9:00  THE EFFECT OF METAL OXIDES AND BLACK CARBON (SOOT) ON SO2/O2/H2O REACTION SYSTEMS. Abdul R. Chughtai, Michael E. Brooks, M.S. Akhter, Dwight M. Smith, Department of Chemistry, University of Denver, Denver, CO.
9:20 ANALYSIS OF MTBE IN GASOLINE BY INFRARED SPECTROSCOPY. James E. Tackett, Marathon Oil Company, PO Box 269, Littleton, CO 80160.

9:40 BREAK

10:00 CHEMICAL KINETICS AND PHOTOCHEMISTRY OF LOW CONCENTRATION SOOT/NO2/O2/H2O AND SOOT/NO2/SO2/H2O/O2 SYSTEMS. Abdul R. Chughtai, Seth A. Gordon and Dwight M. Smith, Department of Chemistry, University of Denver, Denver, CO.

10:25 THE NICOLET RAMAN 910-A DEDICATED NTR-FT RAMAN SPECTROMETER. Ben A. Garland, Fred Walder and Chris Patty, Nicolet Instruments Corporation, 5225 Verona Road, Madison, WI 53711.

10:55 THE SCANNING INFRARED MICROPROBE (SIRM) ANALYSIS SYSTEM. Kenneth J. Ward, Spectra-Tech Inc. 652 Glenbrook Road, Stamford, Ct. 06906.

11:25 SPECULAR REFLECTION IN THE MID AND FAR INFRARED ADVANTAGES AND LIMITATIONS. W.D. Perkins, The Perkin-Elmer Corporation, 2305 Bering Drive, San Jose, CA 95131.

11:45 LUNCH

Monday, August 3, 1992

1:55 A SPECTROSCOPIC COMPARISON OF THE SURFACE MORPHOLOGY OF THTN SILVER FILMS ON GLASS AND FORMVAR. Shane E. Roark and Kathy L. Rowlen, Department of Chemistry and Biochemistry, University of Colorado at Boulder, Boulder, CO.

2:15 BREAK

2:30 RAMAN SPECTROSCOPIC STUDY OF THE SECONDARY STRUCTURE OF AN ANTIFREEZE GLYCOPEPTIDE. Joel A. Drewes and Kathy L. Rowlen, Department of Chemistry and Biochemistry, University of Colorado at Boulder, Boulder, CO.

2:55 ENHANCED IR DISCRIMINATION OF INHOMOGENEOUS MINERALS USING AN IMAGING REFLECTANCE MICROPROBE IN A DEEP LEVEL ACOUSTIC PROBE. Steven Hill, BioRad, 237 Putnum Avenue, Cambridge, MA 02139.


SYMPOSIUM ON HAZARDOUS WASTE
Organized by Laura Peitersen

Tuesday, August 4, 1992

8:55 OPENING REMARKS. Laura Peitersen.

51
9:00  KEYNOTE SPEAKER: CHEMISTRY AND HAZARDOUS WASTE SITE REMEDIATION: AN INCREASED ROLE FOR CHEMISTS IN EVALUATING THE HAZARD OF SOIL LEAD RESIDUES TO CHILDREN AND TO AQUATIC LIFE. G. Fred Lee, G. Fred Lee & Associates, El Macero, CA.

9:45  BREAK

10:00 DEALING WITH LABORATORY HAZARDOUS WASTE. Sonia Ringen, University of Wyoming Safety Office, Laramie, WY.

10:20 VALIDATION OF A SELECTIVE DISSOLUTION TECHNIQUE FOR DETERMINING THE CHEMICAL FORM OF HEAVY METALS IN CONTAMINATED SEDIMENTS. Keith Rittle and James I. Drever, Department of Geology and Geophysics, University of Wyoming, Laramie, WY.

10:50 DEVELOPMENT OF TRANSPORTATION IMPACT ANALYSIS. Shawn Mangum, Wastech Services, Denver, CO.

11:20 UTILIZATION OF A GEOGRAPHIC INFORMATION SYSTEM FOR HAZARDOUS WASTE MANAGEMENT. William Gribb and Lawrence Ostresh, Department of Geography and Recreation, University of Wyoming, Laramie, WY.

12:00 LUNCH

Tuesday, August 4, 1992
Afternoon Session

1:25 OPENING REMARKS. Laura Peitersen.

1:30 REMEDIATION OF HYDROCARBON CONTAMINATED SITES. John Ahern, TriHydro, Inc. Laramie, WY.

1:50 NATURAL RESOURCE DAMAGE UNDER CERCLA AND THE CLEAN WATER ACT. Michael Hone, Denver, CO.

2:40 BREAK
2:45 THE FUTURE OF HAZARDOUS WASTE MANAGEMENT.
Susan Fields, Western Water Consultants, Inc. Laramie, WY.

3:15 OPEN PANEL DISCUSSION ON REGULATORY ASPECTS
OF HAZARDOUS WASTE. PANEL MEMBERS INCLUDE:
Susan Fields, Civil Engineer, WWC, Inc., Hal Winslow, Winslow
and Associates, Mike Hope and Shawn Mangum.

4:55 CONCLUDING REMARKS

Wednesday, August 5, 1992

8:55 OPENING REMARKS. Laura Peitersen.

9:00 KEYNOTE SPEAKER: ENVIRONMENTAL ISSUES IN
AMERICAN AGRICULTURE. Thomas A. Colbert, Agricola
Environmental Services, Denver, CO.

9:45 THE NEW HM-181 REGULATION. Shawn Mangum, Was tech
Services, Denver, CO.

10:15 BREAK

10:25 BIOREMEDIATION. Patricia Colberg, Department of Molecular
Biology, University of Wyoming, Laramie, WY.

10:55 IMMOBILIZATION OF TOXIC ELEMENTS IN CLEAN COAL
TECHNOLOGY BY-PRODUCTS. T.A. Tawfic, Wyoming Water
Research Center, Laramie, WY.

11:15 RADIOACTIVE AND NONRADIOACTIVE WASTE
CHARACTERIZATION AT THE ROCKY FLATS PLANT.
Ralph Grover, Rocky Flats.
SYMPOSIUM ON ENVIRONMENTAL IMPORTANCE OF HUMIC SUBSTANCES
Organized by R.L. Wershaw

Wednesday, August 5, 1992

SPECIAL SYMPOSIUM
A panel of scientists with wide experience in the field of humic substance research will lead a discussion on the interactions of humic substances with organic and inorganic pollutants in natural water systems. The following topics will be discussed:

WHAT ARE HUMIC SUBSTANCES? MODELS OF HUMIC SUBSTANCES. INTERACTIONS OF HUMIC SUBSTANCES WITH METAL IONS. INTERACTIONS OF HUMIC SUBSTANCES WITH HYDROPHOBIC ORGANIC COMPOUNDS.

PANEL MEMBERS:

J.A. Leenheer, is project leader of the Comprehensive Organic Analyses Project, U.S. Geological Survey.


Patrick MacCarthy, is professor of chemistry at the Colorado School of Mines.


These panelists have had extensive experience in the isolation and characterization humic substances, and the measurement of their interactions in natural water systems. The panelists will each make a short presentation after which the audience will be invited to comment and to add to the material presented.
SYMPOSIUM OF INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETRY

Organized by Howard E. Taylor

Wednesday, August 5, 1992

Howard E. Taylor, Presiding


1:20 AUTOMATED QUALITY CONTROL SOFTWARE FOR ICP OPTICAL EMISSION AND ICP MASS SPECTROMETRY. Cindy Anderau, Robert Thomas and Randy Hergenreder, Perkin-Elmer Corporation, Norwalk, CT.

1:40 EXTENSION OF ICP-MS DYNAMIC RANGE BY SIMULTANEOUS DETECTION IONS AND OPTICAL EMISSIONS. Steve Govorchin, Serapio Ayala, Sarah McGinty and Steven Hughes, Bandgap Technology, Broomfield, CO.

2:00 ANALYSIS OF DIFFICULT MATRICES USING HIGH RESOLUTION ICP-MS. John Castle, Amanda Walsh and Rob Henry, Risons Investments, Fredericksburg, VA.

2:20 BREAK

2:40 DETECTION OF RARE EARTH ELEMENTS BY ICP-HRMS. K. Otsuka, M. Iwanaga and B. Musselman, JEOL, LTD. Akishima, Japan.


3:40 A Q-SWITCHED ND:YAG LASERPROBE FOR ICP-MS ANALYSIS. Rob Henry, Ian Abell and Ed McCurdy, Fisons Instruments, Fredericksburg, VA.

55
8:55 INTRODUCTORY REMARKS. DeLyle Eastwood.

9:00 LUMINESCENCE PARAMETERS AND RATE CONSTANTS OF THE TETROLS OF BENZO(A)PYRENE-DNA ADDUCTS ON 10%-CYCLODEXTRIN/NACL MIXTURES. Johannes Corley and Robert J. Hurtubise, Department of Chemistry, University of Wyoming, Laramie, WY 82071.

9:50 EXTRINSIC PROBE STUDIES OF THE LIPID-RELATED LUMINESCENCE OF HUMAN SERUM. Robert D. Stevens and Linda B. McGown, Department of Chemistry, Duke University, Gross Chemical Laboratory, Durham, NC 22706.

10:15 BREAK

10:45 FLUORIMETRIC DETERMINATION OF OPERATIONAL pH IN AQUEOUS METHANOL. Stephen G. Schulman and Robert Townsend, Department of Medicinal Chemistry, University of Florida, Gainesville, FL 32610-0485.

11:10 FLUORESCENCE ENERGY TRANSFER IN FRACTALS AND RESTRICTED GEOMETRIES. T. Gregory Dewey, Department of Chemistry, University of Denver, Denver, CO 80208.

11:35 SOLID-MATRIX LUMINESCENCE PROPERTIES OF THE GUANINE ADDUCT OF BENZO(A)PYRENE ABSORBED ON a-, B-, y-CYCLODEXTRIN/NaCl AND TREHALOSE/NaCl SOLID MATRICES. Yu Chu and Robert J. Hurtubise, Department of Chemistry, University of Wyoming, Laramie, WY 82070.

12:00 LUNCH
Monday, August 3, 1992
Robert J. Hurtubise, Presiding

2:00 TIME-RESOLVED FLUORESCENCE ENERGY TRANSFER USING A Tb CHELATE DONOR. Scott Saavedra and Sylvia Kolchens, Department of Chemistry, University of Arizona, Tucson, AZ 85721.

2:25 EVALUATION OF PHOTOIMITIATED PEROXYOXALATE CHEMILUMINESCENCE IN POLYACRYLAMIDE GELS. Andreas H.J. Cromping, Robert E. Milsky and John W. Birks, Department of Chemistry and Biochemistry and Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO 80309-0216.


4:10 CONCLUDING REMARKS. Robert J. Hurtubise.

Mass Spectrometry Symposium

Organized by Joseph A. Zirrolli and Steve Zaugg

Monday, August 3, 1992

8:30 KEYNOTE SPEAKER: RECENT ADVANCES IN FOUR-SECTOR TANDEM MASS SPECTROMETRY: APPLICATION TO BIOMOLECULES. Michael Gross, Department of Chemistry, University of Nebraska, Lincoln, NE 68588.
9:20 IDENTIFICATION OF NOVEL METABOLITES OF LEUKOTRIENE B4. Robert C. Murphy, Department of Pediatrics, National Jewish Center for Immunology and Respiratory Medicine, Denver, CO 80206.


10:20 BREAK

10:35 STUDIES OF SERUM FERRITIN BY ELECTROSpray LC/MS. D. Dvckes, C. Campbell, K. Veisbein and M. Dumovic, Department of Chemistry, University of Colorado, Denver, CO.

11:05 THERMOSPRAY LC/MS ANALYSIS OF PROTEIN ADDUCTS OF ELECTROPHILIC METABOLITES. Sherri B. Turnipseed, Judy L. Bolton and John A. Thompson, School of Pharmacy, University of Colorado, Boulder, CO 80309.

11:35 MASS SPECTROMETRY IN NUTRITION RESEARCH. Paul V. Fennessey, David Flory and Leland V. Miller, Department of Pediatrics, University of Colorado Health Sciences Center, Denver, CO 80262.

12:05 LUNCH & EXHIBITION

Monday, August 3, 1992

2:00  THE GAS PHASE ACIDITY OF HINDERED AMINES AND SOME REACTION CHEMISTRY OF THEIR CORRESPONDING AMIDE IONS. Michele Krempp, Richard O Hair, Robert Damrauer and Roger A. Simon, Department of Chemistry & Biochemistry, University of Colorado, Boulder, CO 80309-0215 and Department of Chemistry, University of Colorado, Denver, CO.

2:30  A DETAILLED INVESTIGATION OF THE GAS PHASE PROTON ABSTRACTION REACTION BETWEEN HYDROXIDE ION AND ACROLEIN. Marin S. Robinson, Fred W. Breitbeil, III and Charles H. DePuy, Department of Chemistry & Biochemistry, University of Colorado, Boulder, CO 80309-0215, and Department of Chemistry, DePaul University, Chicago, IL 60614

3:00-5:00  EXHIBITION

Tuesday, August 4, 1992

8:30  FINNIGAN CORPORATION INVITED SPEAKER. THE FUTURE OF QUADRUPOLE MASS SPECTROMETERS. Gary L. Glish, Department of Chemistry, University of North Carolina, Chapel Hill, NC.


9:50  INEXPENSIVE AND ROUTINE BENCHTOP MASS SPECTROMETER FOR SFC/EI-MS APPLICATIONS. Verl Murugaverl, Kent J. Voorhees and Ahmad Ghaaibeh, Department of Chemistry & Geochemistry, Colorado School of Mines, Golden, CO 80401.

10:20  BREAK

59

11:05  APPLICATION OF PROBE MICRODISTILLATION LOW VOLTAGE-HIGH RESOLUTION MASS SPECTROMETRY FOR THE CHARACTERIZATION OF ORGANOSULFUR CONSTITUENTS IN HIGH SULFUR COALS. Garret A. Veloski, Ronald J. Lynn, Richard F. Sprecher and Curt M. White, United States Department of Energy, Pittsburg Energy Technology Center, PO Box 10940, Pittsburgh, PA 15236.

11:35  EXHIBITION & LUNCH

Tuesday, August 4, 1992

1:30  STRUCTURAL ANALYSIS OF HYDROXY, UNSATURATED FATTY ACIDS BY TANDEM MASS SPECTROMETRY. Pal Wheelan, Joseph A. Zirrolli and Robert C. Murphy, Department of Pediatrics, National Jewish Center for Immunology and Respiratory Medicine, Denver, CO 80206.

2:00  ANALYSIS OF OXIDIZED PHOSPHOLIPIDS BY FAB MS/MS. Kathleen Kayganich, David Rose and Robert C. Murphy, Department of Pediatrics, National Jewish Center for Immunology and Respiratory Medicine, Denver, CO.

2:30  PEPTIDE SEQUENCE DETERMINATION BY TRIPLE SECTOR QUADRUPOLE MASS SPECTROMETRY. Denise MacMillan, Keith L. Clay, Frank A Fitzpatrick and Robert C. Murphy, Department of Pediatrics, National Jewish Center for Immunology and Respiratory Medicine, Denver, CO 80206.

3:00  FACILE DETERMINATION OF ALKYL-BRANCHED FATTY ACID METHYL ESTERS BY TANDEM MASS SPECTROMETRY. Joseph A. Zirrolli. Department of Pediatrics. National Jewish Center for Immunology and Respiratory Medicine, Denver, CO 80206.

3:30-5:00  EXHIBITION

60
NMR SYMPOSIUM
Organized by: R. Botto, H. Eckert, J. Garbow, H. Thomann, A.J. Vega, and J. P. Yesinowski

SYMPOSIUM TO HONOR BERNIE GERSTEIN ON THE OCCASION OF HIS RETIREMENT

Monday, August 3, 1992
H. Eckert, Presiding

8:25 WELCOMING REMARKS. H. Eckert.

8:30 TO BE ANNOUNCED. T.T.P. Cheung. Phillips Petroleum Company, Bartlesville, OK.

9:00 PROBING POLYMER MORPHOLOGY WITH XENON NMR. Po-Jen Chu, T. T. P. Chueng, and G. L. Wilkes, Phillips Petroleum Company, Bartlesville, OK.

9:30 129XE NMR OF ADSORBED MO SUBCARBONYLS. Cathy Tway and Thomas M. Apple. Rensselaer Polytechnic Institute, Troy, N.Y.

10:00 BREAK

10:30 WHAT IS A TYPICAL DIPOLAR COUPLING CONSTANT IN A SOLED? Serge Lacelle. Universite de Sherbrooke, Sherbrooke, Quebec, Canada.


11:30 NMR, IR, AND DIELECTRIC STUDIES OF WATER IN THE CHANNELS OF BERYL. Alexander J. Vega, Robert D. Shannon, and George R. Rossman, Dupont Central Research and Development, Wilmington DE
12:00  CHARACTERIZATION OF SURFACE PHENOMENA ON SUPPORTED METALLIC CATALYSTS BY SOLID STATE NMR OF $^1H$ AND AND FTIR SPECTROSCOPY. Marek Pruski,Teny S. King, and Bernard C. Gerstein, Iowa State University, Ames, IA.

Monday, August 3, 1992:
SPIN DYNAMICS AND NEW EXPERIMENTAL TECHNIQUES
J. P. Yesinowski, Presiding

2:00  NEW ANGLES IN DYNAMIC MAGIC ANGLE SPINNING NMR. P. J. Grandinetti, Y. K. Lee, J. H. Baltisberger, A. Llor, and A. Pines, UC Berkeley, CA.

2:30  TWO-DIMENSIONAL NMR WITH VARIABLE ANGLE SPINNING. Lucio Frvdman, Gerard C. Chingas, Young K. Lee, Philip J. Grandinetti, Margaret A. Eastman, Geoffrey A. Barral, and Alexander Pines, UC Berkley, CA.

3:00  RETRIEVAL OF QUADRATURE PHASE INFORMATION FROM CRAMPS EXPERIMENTS. Lai ma M. Baltusis and Thomas. M. Barbara, Varian Associates, Palo Alto CA.

3:30  BREAK

4:00  THE DETECTION OF WEAK HETERONUCLEAR COUPLING BETWEEN $^1H$ AND $^1H/2$ NUCLEI IN MASNMR; $^{13}C$ DOUBLE RESONANCE EXPERIMENTS. Clare P. Grey and Wiebren S. Veeman, Dupont Central Research and Development, Wilmington, DE and University of Nijmegen, Nijmegen, The Netherlands.

4:30  MEASUREMENT AND INTERPRETATION OF INDIRECT SPIN-SPIN COUPLINGS IN THE SOLID STATE. Roderik Wasylishen, Dalhousie University.

5:00  CHEMICAL SHIFT ANISOTROPY: TROUBLEMAKER OR SUPPLIER OF INFORMATION? Amdt-Rudiger Grimmer, WTP-KAI, e.V., Berlin Germany.
Tuesday, August 4, 1992
R. W. VAUGHAN PLENARY LECTURE  H. Eckert, Presiding

8:30  ROTATIONAL RESONANCE AND RF DRIVEN RECOUPLING: HOMNUCLEAR DISTANCE MEASUREMENTS IN SPINNING SOLIDS. Robert G. Griffin, MIT, Cambridge, MA.

BIOLOGICAL SOLIDS I  J. R. Garbow, Presiding

9:30  ROTATIONAL RESONANCE NMR STUDIES OF MEMBRANE-BOUND PEPTIDES. Steven O. Smith, Olve Peersen and Saburo Aimoto, Yale University, New Haven, CT and Institute for Protein Research, Osaka, Japan.

10:00  BREAK

10:30  MAGIC-ANGLE SPINNING NMR STUDIES OF MOLECULAR ORGANIZATION IN MODEL SUBSTRATE MIXTURES FOR GLYCERIDE DIGESTION. Ruth E. Stark, K. L. Li, and C.A. Tihal, College of Staten Island, Staten Island, N. Y.

11:00  SOLID STATE NMR STUDIES OF ENZYME BINDING SITES. A. M. Christensen and J. Schaefer, Washington University, St. Louis, MO.

11:30  MEMBRANE-BOUND POLYPEPTIDE STRUCTURE AND DYNAMICS BY SOLID STATE NMR. Tim Cross, University of Florida

Tuesday, August 4, 1992
BIOLOGICAL SOLIDS II  J. R. Garbow, Presiding

1:30  CONFORMATIONS OF PEPTIDES AND PROTEINS BY "c-15N REDOR NMR SPECTROSCOPY. Joel R. Garbow and Charles A. McWherter, Monsanto Company, St. Louis MO.

2:00  MULTIDIMENSIONAL ZERO-FIELD NMR SPECTROSCOPY OF PROTEINS. M. H. Liao, R. Subramanian, R. Templin, and Gerard Harbison, SUNY Stony Brook.
2:30  NMR STUDIES OF MACROMOLECULAR STRUCTURE AND DYNAMICS. Gary Drobney, University of Washington, Seattle WA.

3:00  BREAK

SOLID STATE IMAGING  R. Botto, Presiding


4:00  STUDIES OF SINGLE AND MULTIPHASE FLOWS BY NMR. Eiichi Fukushima et al., Lovelace Medical Foundation, Albuquerque, NM.

4:30  SPIN INTERACTIONS AT INTERFACES; EFFECTS AND ARTIFACTS IN NMR MICROSCOPY. E. McFarland and D. Lee, UC Santa Barbara, CA.

5:00  SOLID STATE NMR IMAGING OF POLYMERS. J. B. Miller, A. N. Garroway, and D. G. Cory, Naval Research Laboratory, Washington DC.

Wednesday, August 5, 1992

CATALYSIS AND CATALYTIC MATERIALS  A. J. Vega, Presiding

8:30  TO BE ANNOUNCED. Y. Wu, University of North Carolina, Chapel Hill, NC.

9:00  NMR STUDIES OF OVERLAYERS ON GRAPHITE: CD, AND XE ON GRAPHITE FOAM. G. T. Went and T. M. Duncan, Cornell University, Ithaca, NY.
9:30  TOWARDS A SYSTEMATIC CHEMISTRY OF ZEOLITE CATALYSIS. James F. Haw, Eric J. Munson, Larry W. Beck, Ali A. Khier, David K. Murray, Jih-Wen Chang, Jeffery L. White, Teng Xu, and David B. Ferguson, Texas A&M University, College Station, TX.

10:00  BREAK

10:30  EXPERIMENTAL METHODS FOR MAS NMR STUDIES OF REACTIVE SPECIES. David B. Ferguson, Eric J. Munson, Larry W. Beck, Gregory W. Oliver, Jeffery L. White and James F. Haw, Texas A&M University, College Station, TX.

11:00  SURFACE CHEMISTRY OF CO ON PD, RU, AND CU-PD VIA HIGH RESOLUTION SOLUTION STATE NMR. John M. Millar, John S. Bradley, Ernestine W. Hill, and Debra A. Lemp, Exxon Research and Engineering, Annandale, NJ.

11:30  13C NMR STUDY OF CO ADSORBED ON SUPPORTED PD PARTICLES TO CHARACTERIZE COADSORPTION EFFECT AND MORPHOLOGY CHANGE. OcHeeHan, Kurt W. Zilm, Gustavo Larsen, and Gary L. Haller, Yale University, New Haven, CT.

Wednesday, August 5, 1992
Session I
CARBONACEOUS MATERIALS AND POLYMERS
R. Botto Presiding

1:30  HIGH RESOLUTION *H AND 13C SOLID STATE NMR STUDIES OF MESOPHASE FORMATION FROM BROWN COAL DERIVED PITCH. John W. Hanna, Anthony M. Vassallo, and Andrew J. Palmisano, CSIRO, Australia.

2:00  LARGE SAMPLE VOLUME ROTOR SYSTEM FOR BLOCH DECAY NMR EXPERIMENTS ON COAL. Yi Jin Jiang, Mark S. Solum, Ronald J. Pugmire, and David M. Grant, University of Utah, Salt Lake City, UT.
2:30  NMR SPECTROSCOPIC STUDIES OF COAL AND ITS LIQUEFACTION PRODUCTS. W. D. Provine, M. A. Jacintha, M. T. Klein, W. H. Calkins, and Cecil Dvbowski, University of Delaware, Newark DE.

3:00  BREAK

3:30  NMR STUDIES OF CHEMICAL VAPOR DEPOSITED DIAMOND FILM. Herman Lock, Gary E. Maciel, Colorado State University, Fort Collins, CO and Curtis E. Johnson, Naval Air Warfare Center, China Lake, CA.

4:00  *H NMR OF POLYCRYSTALLINE DIAMOND FILMS. Karen M. McNamara, David H. Levy, and Karen K. Gleason, MIT, Cambridge, MA.

4:30  CHARACTERIZATION OF MOLECULAR ORIENTATION IN POLYMERIC THIN FILMS AND FIBERS USING MULTIDIMENSION DECODER NMR EXPERIMENTS. Brad F. Chmelka, Klaus Schmidt-Rohr, and Hans Wolfgang Spiess, University of California, Santa Barbara, CA, and Max Planck Institute for Polymerforschung, Mainz, Germany.

5:00  IDENTIFICATION OF POLY(PHENYLENE SULFIDE) END GROUPS BY SOLID STATE ◀c NMR. Maziar Sardashti, Stephen M. Wharry, Daniel J. O'Donnell, Paul J. DesLauriers, and Paritosh K. Das, Phillips Petroleum Company, Bartlesville, OK.

August 5, 1992.

Session II
INORGANIC SEMICONDUCTORS J.P. Yesinowski, presiding

1:30  MULTINUCLEAR NMR STUDY OF THE ALLOY SEMICONDUCTOR Hg0.7gCd0.22Te. D. B. Zax, S. Vera and D. Zamir, Cornell University, Ithaka, N. Y. and Weizmann Institute, Rehovot, Israel.
2:00 COMPARISON OF THE INTERNUCLEAR DISTANCES IN CRYSTALLINE AND AMORPHOUS CD₃P, BY MAGIC ANGLE SPINNING SOLIDS NMR. Susan Holl and Jacob Schaefer, Washington University, St. Louis.

2:30 DIPOLAR MAS NMR STRATEGIES FOR STRUCTURAL STUDIES OF TETRAHEDRAL SEMICONDUCTORS. Hellmut Eckert and Deanna Franke, UC Santa Barbara, CA.

3:00 BREAK

INORGANIC MATERIALS STRUCTURE AND DYNAMICS
H. Eckert, presiding

3:30 CHARACTERIZATION OF ADVANCED CERAMICS BY MULTINUCLEAR SOLID STATE MAGNETIC RESONANCE. Mark E. Smith and Timothy J. Bastow, CSIRO Australia.

4:00 WIDELINE PROTON NMR AND STRUCTURAL IMPLICATIONS FOR TWO NATURAL ZEOLITES: CLINOPTILOLITE AND HEULANDITE. Raymond L. Ward and H. Lawrence McKague, Lawrence Livermore Laboratory, Livermore, CA.

4:30 CLAY STRUCTURES INVESTIGATED BY SOLID STATE ¹⁹F NMR. Young Wah Kim, Andrea Labouriau, Steve J. Chipera, David L. Bish, and William L. Earl, Los Alamos National Laboratory, Los Alamos, NM.

5:00 MOLECULAR MERRY GO-ROUNDS; WHOLE MOLECULE REORIENTATION OF CROWN ETHERS IN THEIR SOLID COMPLEXES. C. I. Ratcliffe, J. A. Ripmeester, National Research Council of Canada, Ottawa, Canada.

Thursday, August 6, 1992
SPIN DYNAMICS AND NEW EXPERIMENTAL TECHNIQUES II  H. Thomann, presiding
8:30  NMR STUDIES OF SINGLE CRYSTAL AND POWDER SAMPLES OF TRANSITION METAL DIHYDROGEN COMPLEXES. Linda Wisniewski and Kurt Zilm, Yale University, New Haven, CT.

9:00  DRAMATIC NMR APPROACH TO STRUCTURE DETERMINATION IN SOLIDS. Robert Tvcko, AT&T Bell Laboratories, Murray Hill, NJ.


10:00  BREAK

NMR OF IMPRISONED SPINS

10:30  DETAILS OF STRUCTURE AND DYNAMICS OF THE HYDROXYL GROUPS OF SILICA AS STUDIED BY 1H AND 29Si NMR. David R. Kinney, I-Ssuer Chuang, and Gary E. Maciel, Colorado State University, Fort Collins, CO.

11:00  NMR AS A PROBE OF THE PORE SPACE GEOMETRY AND FLUID DYNAMICS IN POROUS MEDIA. Michael Herold and Hans Thomann, Exxon Corporate Research, Annandale, NJ.

11:30  PHASE ENCODED CHEMICAL SHIFT IMAGING OF FLUIDS IN POROUS MEDIA. Chii T. Chang and Karl M. Edwards, Texas A&M University, College Station, TX.

12:00  NMR RELAXATION IN POROUS ROCK. Robert Kleinherg, Schlumberger-Doll, NJ.
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:25</td>
<td>WELCOME AND INTRODUCTION OF KEYNOTE SPEAKER. R. K. Lantz.</td>
</tr>
<tr>
<td>8:30</td>
<td>KEYNOTE SPEAKER: CORRELATION BETWEEN DISSOLUTION TESTING AND BIOAVAILABILITY. EU Shelter. Department of Pharmacy, University of Colorado.</td>
</tr>
<tr>
<td>9:30</td>
<td>NUTS AND BOLTS OF DISSOLUTION TESTING. Mike Pasolinko. Van Kel, Inc.</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
</tr>
<tr>
<td>10:50</td>
<td>MASS SPECTROMETRY IN DRUG METABOLISM STUDIES. Paul Fennessay. University of Colorado, Health Sciences Center.</td>
</tr>
<tr>
<td>11:50</td>
<td>LUNCH</td>
</tr>
<tr>
<td>1:30</td>
<td>GC/MS ANALYSIS OF A NEW CORTICOSTEROID. Paul Fennessay and Adrian Pike. University of Colorado, Health Sciences Center.</td>
</tr>
<tr>
<td>1:50</td>
<td>ANALYSIS OF THALIDOMIDE IN PHARMACEUTICAL DOSAGE FORMS. Robert K. Lantz. Patricia L. Sulik, RML, Inc.</td>
</tr>
<tr>
<td>2:10</td>
<td>MICROWAVE HYDROLYSIS OF PROTEIN AND PEPTIDES FOR AMINO ACID ANALYSIS. W. Gary Eneelhart. CEM Corporation.</td>
</tr>
<tr>
<td>2:30</td>
<td>BREAK</td>
</tr>
</tbody>
</table>

69
AN ISOCRATIC HPLC METHOD FOR ANALYSIS OF SIX NONSTEROIDAL ANTIINFLAMMATORY DRUGS. Brian K. Low, Randy M. McEvoy, Paul C. Reinhart, Atrix Laboratories.

AUTOMATED DISSOLUTION TESTING WITH ION CHROMATOGRAPHIC ANALYSIS OF POTASSIUM CHLORIDE EXTENDED RELEASE TABLETS. Jeanne B. Li, Dennise Kent, Millipore, Waters Chromatography.

ELECTROSPRAY IONIZATION ADVANCES IN PHARMACEUTICAL AND BIOLOGICAL ANALYSIS. Mark Uhrich, Ian Jardine, Ken Johnson, Mark Hail, Iain Mylchreest, Joe Zhou. Finnigan MAT.

1992 Quality Assurance Symposium
Organized by William Shampine and Victor Janzer

Tuesday, August 4, 1992

WELCOME AND INTRODUCTORY REMARKS

PRECISION IN ANALYTICAL MEASUREMENTS: EXPECTED VALUES AND CONSEQUENCES IN GEOCHEMICAL ANALYSES. William Horwitz and Richard Albert, U.S. Food and Drug Administration, Washington, D.C.

THE CALCULATION OF METHOD DETECTION LIMITS: AN ALTERNATIVE PROCEDURE USING MULTIPLE SAMPLE DUPLICATES. Kenneth E. Osborn and Arnold E. Greenberg, East Bay Municipal Utility District, Oakland, California.


BREAK
10:30 USE OF PERFORMANCE EVALUATION SAMPLES IN ASSESSING ENVIRONMENTAL DATA QUALITY. Peggy Zawodny and Diann Simms Diwight, U.S. Environmental Protection Agency, Annapolis, Maryland.

11:00 DATA USABILITY FOR RISK ASSESSMENT. Ruth Blevler, U.S. Environmental Protection Agency, Washington, D.C.

11:30 LUNCH

Tuesday, August 4, 1992

1:00 THE ROLE OF QUALITY ASSURANCE IN CLP COMPLIANCE. Diane Bradway, U.S. Environmental Protection Agency, Denver, Colorado.

1:30 CONTRACT LABORATORY PROGRAM (CLP), QUALITY ASSURANCE/EVIDENTIARY AUDITING PROGRAM - AN OVERVIEW. Michael L. Hurd, U.S. Environmental Protection Agency, Washington, D.C.

2:00 BREAK


3:00 THE EFFECT OF FILTER MEMBRANE SELECTION ON TRACE METAL DETERMINATIONS IN DRINKING WATER, Gregory K. George, Technology Applications, Inc, c/o U.S. Environmental Protection Agency, Cincinnati, Ohio.

Wednesday, August 5, 1992

8:25 WELCOME AND INTRODUCTORY REMARKS

8:30 INTERNAL AUDITING FOR QUALITY ASSURANCE. Steve Baugh, Analytica Inc., Golden, Colorado.

9:00 BUILDING FLEXIBILITY INTO A QUALITY ASSURANCE PLAN. Timothy L. Fisher, U.S. Army Environmental Hygiene Agency, Aberdeen, Maryland.


10:00 BREAK

10:30 CONSIDERATIONS FOR CERTIFICATION RENEWAL OF A LIQUID WAVELENGTH STANDARD REFERENCE MATERIAL FOR UV/VISIBLE SPECTROPHOTOMETRY. Jerry D. Messman, Melody V. Smith, Nancy K. Winchester, National Institute of Standards and Technology, Gaithersburg, Maryland.

11:00 THERMAL ANALYSIS OF BIKN03 AND TI/B ADMIXTURES. Albert S. Tompa, Robert F. Boswell, and James E. Rose, Naval Surface Warfare Center.

11:30 CONCLUDING REMARKS

12:00 LUNCH

Wednesday, August 5, 1992

2:00-4:00 PANEL - WASTE DISPOSAL - THE KEY TO AN EFFECTIVE QUALITY ENVIRONMENT?
LABORATORY TOTAL QUALITY MANAGEMENT
Organized by Earle A. Lewis

Monday, August 3, 1992

8:00 OPENING REMARKS. Earle A. Lewis.

8:15 CAN WE BE RIGHT THE FIRST TIME? Lynn F. James, USDA-Agricultural Research Service.

8:45 ANALYTICAL TURNAROUNDS. MOMENTS OF TRUTH. John G. Huntington and Ellen E. Drew, Phoenix Analytical Laboratories.

9:15 BREAK


10:15 TO BE ANNOUNCED. James Waite. Precision Scientific.

10:45 TO BE ANNOUNCED. Francis Plaisek. Storage Technology.

11:15 TO BE ANNOUNCED. Jeannette Rogers. MetPath Laboratories.

11:45 LUNCH

2:00 PANEL - THE APPLICATION OF TQM PRINCIPLES IN A LABORATORY ENVIRONMENT

SYMPOSIUM ON LABORATORY ROBOTICS
Organized by Richard L. Pfeiffer

Wednesday, August 5, 1992

8:25 INTRODUCTORY REMARKS. R.L. Pfeiffer.

9:00 AUTOMATION OF HERBICIDE EXTRACTION FROM SOIL USING A LABORATORY ROBOTICS SYSTEM. L. J. Jarvis and W. C. Koskinen. USDA/ARS, St. Paul MN.

10:00 BREAK

10:30 DATA VERSES INFORMATION IN THE AUTOMATED LABORATORY. S. R. Metzner. Monsanto Company, St. Louis, MO.

11:00 WORK STATION BASED LABORATORY AUTOMATION FOR THE ENVIRONMENTAL LABORATORY. J. Helfrich. Zymark Corporation, Hopkinton, MA.

POSTERS

TITLES AND AUTHORS
Organized by Mary Cast

COLORIMETRIC ANALYSIS OF SELENIUM IN PREMKES-RESULTS OF RUGGEDNESS TESTS. Jeffrey Hurlbut, Roger G. Burkepile and Carolyn A. Geisler.

GAS CHROMATOGRAPHIC ANALYSIS OF GENTAMICIN AND NEOMYCIN RESIDUES IN BOVINE KIDNEY. Susan B. Clark, Jeffrey A. Hurlbut and Carolyn A. Geisler.

SIMULTANEOUS DETERMINATION OF NITROFURAZONE, NITROFURANTOIN AND FURAZOLIDONE IN CATFISH (ICATALURUS PUNCTATUS) MUSCLE BY HPLC. Heidi S. Runp, Robert K. Munns, Steven M. Plakas and Austin R. Long.

SIMULTANEOUS DETERMINATION XYLAZINE AND ITS MAJOR METABOLITE, 2,6-DIMETHYLANILINE, IN BOVINE AND SWINE KIDNEY BY HPLC. David C. Holland, Robert K. Munns, Jose E. Roybal, Jeffrey A. Hurlbut and Austin R. Long.

LUMINESCENCE OF AMINES CONDENSED ON FILTER PAPER. Catherine H. Haustein and Wanda S. Reiter.
WATER-QUALITY DATA REVIEW FOR INORGANIC CONSTITUENTS AT THE NATIONAL WATER QUALITY LABORATOR, U.S. GEOLOGICAL SURVEY. Mary E. Cast and Carmen G. Reed.

INTERNAL AUDITING RAISES QUALITY. Steven F. Baugh.

RADISSON HOTEL RESERVATION FORM

RADISSON HOTEL DENVER
1550 COURT PLACE
DENVER, CO 80202
(303) 893-3333 OR (800) 654--1550

34th Rocky Mountain Conference August 2-6, 1992

Arrival Date:______________ Departure Date:______________ Arrival Time:______________ Check out 12:00 noon

Guest 1 (last name, first name):________________________________________________________

Guest 2 (last name, first name):________________________________________________________

Address:__________________________________________________________________________

City, State, Country, Zip:______________________________________________________________

Type of Room:                          D Single $80.00/night plus applicable tax
                                      D Double $90.00/night plus applicable tax

Suites available upon request with conference discount

Reservations will be held until 6:00 p.m., on the arrival date unless guaranteed by a credit card number. The Radisson Hotel Denver has agreed to hold a block of rooms for the 34th Rocky Mountain Conference until July 15, 1992. Send this form only to the Radisson Hotel Denver, Attention Reservations at the above address. We urge you to make your reservations promptly.
Please type or print clearly for your badge.

Name_ (LAST) (FIRST) (MIDDLE)
Company_____
Mailing Address.
City__
State/Country/Zip__
Phone________

Please circle area of interest:
A Atomic Spectroscopy
C Chromatography
R IR/FT-IR/NIR/Raman
E Environmental
T Electrochemistry
M Mass Spectrometry
H Luminescence
Q Quality Assurance/TQM
Z Hazardous Waste
P ICP-MS
L EPR
F Robotics
N NMR
X Pharmaceutical Analysis

Preregistration forms must be accompanied with the preregistration fee paid in full ($US only) and be received by July 20, 1992. Make check payable to Rocky Mountain Conference and return to:
C/O Joe Broadus US Geological Survey 5293 Ward Rd. Arvada CO 80002

** Discount airfares are available through Continental Airlines Call 1-800-468-7022 Use Identification # EZ8T53
Map Legend
1. Radisson Hotel Denver
2. Brown Palace Hotel
3. Executive Tower Inn
4. Hyatt Hotel
5. Holiday Inn Downtown
6. Marriott City Center
7. Comfort Inn
8. Warwick
Marvin C. Goldberg
U. S. Geological Survey
P. O. Box 25046 MS 424
Denver, CO 80225