

**Minnesota Chromatography Forum  
29th Annual Spring Symposium  
May 5-7, 2008  
Earle Brown Heritage Center  
Minneapolis, MN**

**Abstract submission deadline for a technical presentation: April 18, 2008**

**Course registration deadline: April 28, 2008**

**Symposium Advanced Registration deadline: April 28, 2008**

For further information contact Janice Jopke  
by phone at (952) 934-5082 or email at [ccsevents@comcast.net](mailto:ccsevents@comcast.net)  
Or, visit the MCF Website at [www.minnchrom.org](http://www.minnchrom.org)

Minnesota Chromatography Forum  
PO Box 44562  
Eden Prairie, MN 55344

The Minnesota Chromatography Forum invites you to participate in its 29<sup>th</sup> Annual Spring Symposium and Short Courses at the Earle Brown Heritage Center in Minneapolis, MN. This year's program will interest people from all areas of separation science.

— KEYNOTE ADDRESS —

By

**Professor John Dorsey**  
**Florida State University**

— FOCUS SESSIONS —

— GENERAL SESSIONS —

— POSTER SESSIONS —

— SPECIAL TOPIC SESSIONS —

— INTENSIVE SHORT COURSES —

“Troubleshooting HPLC Systems”

by John Dolan

“Basic Care, Maintenance and Troubleshooting  
of Capillary GC Systems”

by Daron Decker

“HPLC Method Development for LC-MS”

by Shane Needham

“New Developments in Solid Phase Extraction”

by Ron Majors and Dick Henry

**THE UPPER MIDWEST'S LARGEST  
CHROMATOGRAPHIC  
INSTRUMENTATION AND SUPPLIES  
EXHIBITION**

On Tuesday afternoon, May 6, you are invited to the inaugural Exhibits Keynote Presentation, Special Topic Sessions, Vendor Seminars and a concurrent Exhibition of chromatography supplies and instrumentation. Other highlights of Tuesday afternoon are the complimentary Reception in the Exhibit Hall, and the poster session. The Reception, Keynote Presentation, Vendor Seminars, Special Topic Sessions, Equipment Exhibition and Poster Session are free of charge and are an excellent opportunity to chat with fellow chromatographers.

**DAILY PROGRAM**

**Monday, May 5, 2008**

8:00am- 4:30pm **Concurrent Short Courses**

“Troubleshooting HPLC Systems”

“Basic Care, Maintenance and  
Troubleshooting of Capillary GC  
Systems”

“HPLC Method Development for  
LC-MS”

“New Developments in Solid Phase  
Extraction”

**Tuesday, May 6, 2008**

8:00am - 12:00pm **Concurrent Short Courses**

(continued from Monday)

12:30pm - 6:00pm **Equipment Exhibition opens**

1:00pm - 5:00pm **Vendor Seminars**

1:00pm - 2:00pm **Exhibits Keynote Presentation**

2:00pm - 4:00pm **Special Topic Sessions**

3:30pm - 5:30pm **Reception** in the Exhibit Area

5:00pm Prize Drawing in Exhibit Area

1:00pm - 5:00pm **Posters** to be displayed

4:00pm - 5:00pm **Authors** asked to be with their  
posters

Registration is *not* required for the Vendor Seminars, Keynote Presentation, Special Topic Sessions, Equipment Exhibition, Reception and Poster Session.

Wednesday's sessions require registration.

**Wednesday, May 7, 2008**

7:30am - 8:30am Registration

10:00am - 4:00pm Vendor Exhibits

10:00am - 3:40pm Posters\*

8:30am - 10:00am **Opening Session**

8:30am Welcome

8:45am Palmer Award presentation

8:55am Undergraduate Research Award

9:00am Keynote Address

10:00am Refreshments

10:30am - 12:00pm **Morning Session**

12:00pm Lunch

1:20pm - 3:00pm **Early Afternoon Session**

3:00pm - 3:40pm Refreshments and Prize  
Drawings in the Exhibit Area

3:40pm - 5:00pm **Late Afternoon Session**

5:00pm Annual Business Meeting

\*3:00pm - 3:40pm Authors asked to be at posters

## — SHORT COURSES —

**Monday & Tuesday, May 5 & 6**

The Minnesota Chromatography Forum Education Committee presents four short courses in conjunction with the 2008 Spring Symposium. These courses will be conducted all day May 5<sup>th</sup> and the morning of May 6<sup>th</sup> at the Earle Brown Heritage Center. **The registration deadline is April 28, 2007.** Course fees are \$430 and include luncheons, refreshments, and course materials. The student course fee is \$100 (undergraduate), and \$200 (graduate). A current fee statement from your school is required for the student discount.

\*\*\*\*\* New for 2008 \*\*\*\*\*

## — EXHIBITS KEYNOTE ADDRESS —

1:00pm **Tuesday Afternoon, May 6**

**“Fast LC”**

by **Dick Henry**

## — SPECIAL TOPIC SESSIONS —

**Tuesday Afternoon, May 6**

Special Topic Sessions will be held on Tuesday afternoon. The sessions will address practical laboratory topics in HPLC and GC. The intent is to provide topics of general interest and current utility to local chromatographers by leaders in each Special Topic area.

The sessions will be 45 minutes in length, and focus on practical topics. After a brief introduction to a topic, the moderators will open the discussion for comments and questions. Participants are encouraged to bring questions and problems from their areas of interest to the sessions.

2:00pm **HPLC**

John Dolan and Dan Marchand

3:00pm **GC**

Daron Decker

## — FOCUS TOPICS &amp; INVITED SPEAKERS —

**Wednesday, May 7**

**HPLC**

Dr. Dwight Stoll,  
University of Minnesota

**Gas Chromatography**

Dr. Nicholas Snow,  
Seton Hall University

**Mass Spectrometry**

Dr. Hernan Cortes,  
Dow Chemical

**COURSE OUTLINES****“Basic Care, Maintenance and Troubleshooting of Capillary GC Systems”**

by **Daron Decker**

This day-and-a-half course will focus on just how gas chromatography works and what is really going on inside the capillary. The information will be presented in a very straight-forward way and reinforced with basic chromatographic theory so that the novice as well as the experienced chromatographer can benefit from the discussion. Installing and conditioning the column and then making a successful injection are the keys to starting the chromatographic process and subsequent analysis right. This will be discussed in lecture and reinforced with the hands-on experience with the various manufacturers present, citing the similarities and differences one can expect from instrument to instrument.

Since keeping the GC system up and running is the goal, preventive maintenance is the key. Things that damage the column and ways to prevent problems before they occur will be explored. The four major reasons why columns die will be presented, as well as how to avoid those problems so that the column, theoretically, will last forever. After care and maintenance is explored the discussion will shift to troubleshooting. Knowing how to diagnose problems and correct them is not generally taught before the analyst ever gets in front of the instrument. Therefore, experience, trial-and-error, and dumb luck often lead to remedies that have a lot of "voo doo" attached to them. Knowing what can truly go wrong with a capillary and how to fix it will be tackled.

**Course Outline**

GC Introduction and Theory

Column Installation and Conditioning

Choosing Carrier Gas and Flow Rates

Injection

Care and Maintenance of GC Columns

Troubleshooting of GC Systems

Lab Day 2

LAB1- Cutting the Column, Setting the Distances, Leak-free Seal

LAB2- Setting/Verifying Flows (different instruments)

LAB3- Typical Inlet Maintenance (different instruments)

LAB4- "What's wrong with this picture?"

**“New Developments in Solid Phase Extraction”**by **Ron Majors, Ph.D. & Richard Henry, Ph.D.**

Solid phase extraction (SPE) has become a powerful and popular technique for fast, selective sample preparation prior to analysis or collection. From trace level quantitation to industrial purification, SPE devices and methods play an increasingly important role in solving the most challenging problems in pharmaceutical, food and beverage, fine chemical, and environmental monitoring applications. The principles of SPE and how the two-phase concept relates to chromatography will be covered. Popular and well-established SPE formats such as tubes and discs will be shown and explained, and advantages of designs for certain applications and automation will be included. The chemistry of plain and chemically-modified surfaces and the chemical equilibrium that creates selective separation will be covered in detail. A systematic approach to SPE method development will be described. Finally, the latest SPE techniques and devices, such as SPME, stir bar sorbent extraction (SBSE), molecular imprinted polymers (MIPs), 96-well plates, pipette tips and others, will be described and reviewed.

Course Outline

Intro to basics of SPE (with simple demonstration)

SPE formats

Automating SPE

Chemistry of surfaces

Method development

Advanced SPE topics (SPME, MIPs, SBSE, Pipette

Tips, etc.)

Applications and case studies (bring your own sample prep challenges)

**“Troubleshooting HPLC Systems”**by **John Dolan, Ph.D.**

This popular 1-1/2 day course returns to MCF to help build the HPLC troubleshooting skills of the participants. The first day is spent in the classroom, reviewing all aspects of HPLC equipment operation and maintenance. Time is spent to improve the understanding of the separation process and many practical examples are used to help attendees develop skills to identify and correct problems with chromatographic separations. Each participant will receive a workbook containing all the slides and notes presented in the course. Ample time is available for discussion of specific problems that users bring to the class. The morning of the second day is spent in a round robin workshop with several equipment vendors. Each vendor will present a troubleshooting tool or technique to a small group of students to help reinforce material covered in the classroom session.

**“HPLC Method Development for LC-MS”**by **Shane Needham, Ph.D.**

## 1. Introduction

- Brief history of coupling HPLC and mass spec
- Early pitfalls of LC/MS/MS without good HPLC
- Why is a separation important
- Ionization effects in the source of the MS
- Separation of labile metabolites from parent
- Separation of isobaric drugs or metabolites

## 2. Interfacing HPLC with API

- Electrospray Ionization (ESI)
- Atmospheric Pressure Chemical Ionization (APCI)

## 3. Developing HPLC Methods for MS Detection

- Define final intended use for method
- Obtain basic chemical information on analytes
- Obtain basic info on biological matrices to be analyzed
- HPLC Column chemistry choice
- HPLC Column size choice
- Buffer and solvent choice for LC/MS
- Choice of mode of HPLC Separation
- Optimization of column temp for LC/MS
- Column switching applications

## 4. HPLC/MS Methods: Experiments and Results

- Where to start for a typical HPLC/MS method
- What is adequate retention and peak shape?
- Desired results and what to expect

## 5. Typical Problems, Solutions and Troubleshooting HPLC for MS Detection

- Matrix interferences and ion-suppression in LC/MS
- The transfer and improvement of HPLC methods
- How to improve analysis time without sacrificing quality data
- How to improve chromatographic peak shape
- How to improve chromatographic retention
- Simultaneous HPLC/MS analysis of molecules with different properties
- LC/MS survival kit-tips and tricks for what you really need to know

## 6. Group Problem Solving-Case Studies in LC/MS Method Development

- Dissecting some case studies for specific problems encountered by attendees
- Method development schemes for course attendees' own molecules

## 7. Questions and Answers

## BIOGRAPHICAL SKETCHES OF COURSE INSTRUCTORS

**Dr. John Dolan** is a Principal Trainer and consultant for LC Resources, Inc.. John received his Ph.D. from the University of California at Davis in 1976 and has more than 30 years of HPLC experience. After finishing graduate school, he did postdoctoral work at Northeastern University and then joined Technicon Instruments Corporation, where he worked for three years developing clinical HPLC technology. He moved to IBM Instruments, where he was involved in design and support of LC, IR, and UV products. As a columnist for LC/GC magazine, he has written over 200 installments of the "LC Troubleshooting" monthly column since 1983. In 1984, John and Lloyd Snyder founded LC Resources, which offered support to the separations community via teaching, software, consulting, and laboratory services. In 2002, LC Resources sold its software products to Rheodyne, the laboratory to Bioanalytical Systems, and retained the training business. After acting as General Manager of the BASi Northwest Laboratory for three years, John now spends full time teaching and consulting. He has written more than 100 scientific papers on LC theory, instrumentation, and applications as well as a book on troubleshooting LC instruments and methods. John is the 2002 recipient of the MCF Palmer Award.

**Daron Decker** works for Agilent Technologies as a technical specialist within the Consumable and Accessories organization. Prior to joining Agilent he performed the same role with Chromatography Inc. a contractor of technical support for Agilent GC and HPLC columns and supplies. He spent ten years working for J&W Scientific, Inc. also in the area of technical support. Daron has given hundreds of seminars, courses and technical papers on GC (both domestic and international). He started his career at an environmental lab in south central Minnesota (MVTL) and worked there for two and half years as an analytical chemist. He received his BS in Chemistry (ACS Degree) from the University of South Dakota in 1987. Daron has been a long time proponent of the MCF and member since 1987. He currently lives in Pearland, TX (south of Houston) with his wife of 19 years and their 4 children. Daron was the 2003 recipient of the MCF Palmer Award.

**Refer to the MCF Web Page**

**For Updated Symposium Info**

[www.minnchrom.org](http://www.minnchrom.org)

**Ron Majors, Ph.D.** Since 1990, Ronald E. Majors has been employed by Hewlett-Packard/Agilent Technologies, working in the area of sample preparation and chromatography column technology. His current position is a Master Scientist in the Columns and Supplies Division. Ron received his B.S. in chemistry at California State University, Fresno, in 1963 and his Analytical Chemistry Ph.D. degree in 1968 from Purdue University under the direction of L.B. Rogers. His Ph.D. thesis was in the area of molecular-imprinted phases for chromatography and sample preparation. He is the author of over 250 publications in HPLC, GC, sample preparation and surface chemistry. Among his current activities, he is editor for the monthly features, "Column Watch" and "Sample Preparation Perspectives" in *LC/GC Magazine* for which he also serves on the Editorial Board. Dr. Majors has served as Chairman of HPLC '86 and Anabiotec '90 and as a member of the Instrumentation Advisory Board of *Analytical Chemistry*. His current interests include sample preparation especially solid-phase extraction and automation, and HPLC and GC column technology. Ron is a lifetime member of The Chromatography Forum of Delaware Valley, a member of the American Chemical Society, The Chromatography and Separations Chemistry Sub-division of the Analytical Division of the ACS where he had served as Chairman and Secretary. He is serves on the Board of Directors of the California Separations Society (CaSSS). Ron has been an invited lecturer, session organizer, and session chairman at many national and international symposia. Dr. Majors was the 1994 recipient of the Merit Award in Chromatography from the Chicago Discussion Group, the 1998 Award for Distinguished Contributions in Separation Science sponsored by the California Separations Society and, in 2000, the "Salutes to Excellence" Award from the North Jersey Chromatography Discussion Group, the L. S. Palmer Award from the Minnesota Chromatography Forum in 2006 and, most recently, the Chromatographic Society's 2007 Martin Gold Medal from the United Kingdom, named for the Nobel Prize winner, A.J.P. Martin.

**Refer to the MCF Web Page**

**For Updated Symposium Info**

[www.minnchrom.org](http://www.minnchrom.org)

**Dr. Richard A. Henry** received his B.S. degree in Chemistry from Juniata College in 1963 and Ph.D. in Analytical Chemistry from The Pennsylvania State University in 1966. After a postdoctoral year in separations at Purdue University with Professor L. B. Rogers, he joined DuPont at the Experimental Station in Wilmington, DE and became one of the first employees of the Analytical Instrument Products Division. Dick worked closely with Dr. Jack Kirkland and others in the development of HPLC columns and packing materials. He joined the Penn State University chemistry faculty in 1985 as Director of Analytical Laboratories where he taught Instrumental Analysis to chemistry majors. In 1985, he also founded Keystone Scientific, Inc. where he developed and marketed HPLC columns and related separation technology. He retired from both Penn State University and Keystone Scientific in 2002, and remains active in teaching short courses on separation technology and as a consultant. Dick has research interests in mechanisms of separation and all applications of new LC column technology. He is also interested in hyphenated analytical techniques, especially the rapidly growing field of LC-MS, and all multidimensional separation methods. He served two terms as Chairman of the ACS Subdivision on Separations (1998-2002) and currently serves on its Executive Committee.

**Dr. Shane Needham** is Laboratory Director of Alturas Analytics, Inc. Shane manages all scientific aspects of the HPLC/MS/MS bioanalytical contract laboratory. He has over 70 publications and external presentations in the area of LC/MS. He has over 16 years of LC/MS and analytical lab experience in the drug discovery through drug development stage in the pharmaceutical industry. He previously worked for Pfizer in Groton, CT where he developed and validated GLP and non-GLP LC/MS/MS methods for the trace analysis of drugs and metabolites in biological fluids. He also performed *in vivo* and *in vitro* structure elucidation studies of drugs and metabolites using HPLC/MS/MS and HPLC/MS<sup>n</sup> instrumentation. Shane continued his work in assay development by developing high-throughput HPLC/MS/MS methods for the quantitative analysis of drugs and metabolites in support of high-throughput screening. He also developed novel methods for the on-line extraction of drugs from biological fluids when interfaced to HPLC/MS. Shane has LC/MS experience working with triple quadrupole, single quadrupole, ion trap, time-of-flight and quadrupole time-of-flight instrumentation. His area of academic research included the development of optimized stationary phases to improve the assay of pharmaceuticals by HPLC/MS. Shane is a member of the American Chemical Society, American Society for Mass Spectrometry, American Association of Pharmaceutical

Scientists and the International Society of the Study of Xenobiotics.

#### BIOGRAPHICAL SKETCH

\*\*\* KEYNOTE SPEAKER \*\*\*

**Professor John Dorsey**  
**Department of Chemistry**  
**Florida State University**

John G. Dorsey is the Katherine Blood Hoffman Professor of Chemistry at Florida State University, where he served as Chair of the Chemistry Department from 1994 -1999. He received his Ph.D. degree in Analytical Chemistry in 1979, under T. W. Gilbert at the University of Cincinnati, and then spent ten years on the faculty at the University of Florida. He returned to Cincinnati as Professor in 1989 and moved to Florida State University as Chair in 1994. His research interests are in the areas of fundamental liquid chromatography, separation science, and old Bordeaux wines. He has about 130 publications in these areas, and he serves as Editor for *Journal of Chromatography A*. John has graduated 52 Ph.D. students, and recently received the 2004 Florida Section Award of the American Chemical Society, the 2004 Eastern Analytical Symposium Award for Achievements in Separation Science, the 2006 American Chemical Society Award in Chromatography, the L.S. Palmer Award from the Minnesota Chromatography Forum in 2007, and the 2008 Dal Nogare Award from the Chromatography Forum of Delaware Valley.

**Refer to the MCF Web Page**

**For Updated Symposium Info**

**[www.minnchrom.org](http://www.minnchrom.org)**

## JOB BOARD

Listings for "Positions Wanted" and "Positions Available" will be posted on the Job Board. Additional information and forms will be available at the Registration Desk.

## DIRECTIONS



### Directions to the Earle Brown Heritage Center:

#### From the West:

Take I-94 East and I-694 East to Shingle Creek Parkway exit, follow cloverleaf around, turn left onto Shingle Creek Parkway, left at stoplight (Summit Drive North), left again one block at Earle Brown Drive (first turn), follow around to the main entrance on your right.

#### From the East:

Take I-94 West and I-694 West to Shingle Creek Parkway exit, follow cloverleaf around, turn right onto Shingle Creek Parkway, left at second stoplight (Summit Drive North), left again one block at Earle Brown Drive, follow around to the main entrance on your right.

#### From the South:

Take I-494 West to Hwy. 100 North, exit at John Martin Drive, at top of exit, cross through intersection 57th Avenue North to John Martin Drive, turn left, continue to first stop sign, turn right onto Earle Brown Drive, continue through next stop sign, watch for main entrance on your left.

#### From the North:

Take I-35 South to I-694 West, then to Shingle Creek Parkway exit, follow cloverleaf around, turn right onto Shingle Creek Parkway, left at second stoplight (Summit Drive North), left again one block at Earle Brown Drive, follow around to the main entrance on your right.

### PARKING - FREE! FREE!! FREE!!!

There is ample free parking at the Earle Brown Heritage Center!

## WHAT IS THE MCF?

The Minnesota Chromatography Forum is a scientific society committed to the advancement of chromatography. Since its founding in 1978, the MCF has provided area chromatographers with the opportunity to expand their knowledge in the separation sciences in a variety of ways.

Each year three evening sessions are held with invited speakers ranging from local experts to leading international chromatographers. In addition to the evening meetings, a three day Spring Symposium and Exposition is held in the Minneapolis/St. Paul area.

All of these events are organized by volunteers from the MCF membership. The MCF needs your active participation to continue to offer a variety of interesting and informative programs. Members are encouraged to sign up for any of the following committees: Education, Membership, Newsletter, or Symposium (Program, Exhibits, Facilities & Publicity). A description of each committee and a sign-up sheet will be provided in the Spring Symposium program. Please become an active member of the Minnesota Chromatography Forum.

## INVITED SPEAKERS AND CONTRIBUTED PAPERS

A list of invited speakers and contributed papers may be viewed at the MCF webpage

[www.minnchrom.org](http://www.minnchrom.org)

2008 MCF SPRING SYMPOSIUM / COURSE REGISTRATION FORM

MCF MEMBERSHIP ONLY (1-YEAR) \$ 25.00 \$ \_\_\_\_\_

SPRING SYMPOSIUM - Includes luncheon and complimentary 1-year MCF membership.

Spring Symposium (.5 CEU) (May 7) \$ 110.00 adv-reg. \$ \_\_\_\_\_

Advanced Registration Deadline – April 28 \$ 150.00 on-site \$ \_\_\_\_\_

Spring Symposium with course (May 5-7) \$ 70.00 \$ \_\_\_\_\_

Spring Symposium: Full Time students (May 7) \$ 35.00 \$ \_\_\_\_\_

SHORT COURSE REGISTRATION

Short courses include luncheon for 2 days and complimentary 1-year MCF membership.

Short course fees do not include Spring Symposium Registration (May 7) but short course participants may register for the Spring Symposium for only \$70! Deadline for Course Registration is April 28, 2008.

“Troubleshooting HPLC Systems” (May 5-6) \$ 430.00 \$ \_\_\_\_\_

“Basic Care, Maintenance & Troubleshooting for Cap GC” (May 5-6) \$ 430.00 \$ \_\_\_\_\_

“HPLC Method Development for LC-MS” (May 5-6) \$ 430.00 \$ \_\_\_\_\_

“New Developments in Solid Phase Extraction” (May 5-6) \$ 430.00 \$ \_\_\_\_\_

Full-time Students: Graduate: \$ 200.00 Undergraduate: \$ 100.00 \$ \_\_\_\_\_

Students: Indicate Course name here: \_\_\_\_\_

TOTAL ENCLOSED (Payable to the MN Chromatography Forum, Inc.) \$ \_\_\_\_\_

Visa, MasterCard or AMEX No. \_\_\_\_\_ Exp. Date \_\_\_\_\_

Name of card holder: \_\_\_\_\_

Name \_\_\_\_\_ Phone \_\_\_\_\_

Company \_\_\_\_\_ FAX \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Is this your home address? Y / N

e-mail address \_\_\_\_\_

Need a vegetarian meal? Check here: \_\_\_\_\_ (Advance order required)

Mail Payment and MCF Registration to:

MN Chromatography Forum Symposium
CCS Associates
6611 Countryside Dr.
Eden Prairie, MN 55346
email: ccsevents@comcast.net
Phone: (952) 934-5082
FAX: (952) 934-6741

Where to Stay: The MCF has blocked a limited number of rooms for Spring Symposium participants at:

Country Inn & Suites, Brooklyn Center (763-561-0900) at \$89 single, \$99 double per night

New for 2008 – Shuttle service provided between Earle Brown Center and Country Inn & Suites.

Make reservations as soon as possible, limited space is available. Participants desiring accommodation should call the hotels directly to make reservations. Please be sure to mention that you are attending Minnesota Chromatography Forum (or MCF) Spring Symposium.