

**Minnesota Chromatography Forum
28th Annual Spring Symposium
May 15-17, 2007
Earle Brown Heritage Center
Minneapolis, MN**

Abstract submission deadline for a technical presentation: April 20, 2007

Course registration deadline: May 4, 2007

Symposium Advanced Registration deadline: May 4, 2007

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

Minnesota Chromatography Forum
PO Box 44562
Eden Prairie, MN 55344

NOTE: ALL SHORT COURSES ARE 1.5 DAYS

The Minnesota Chromatography Forum invites you to participate in its 28th 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** —

**“Ultra High Pressure
Liquid Chromatography”**

By
Professor Jim Jorgenson
University of North Carolina

— **FOCUS SESSIONS** —

— **GENERAL SESSIONS** —

— **POSTER SESSIONS** —

— **SPECIAL TOPIC SESSIONS** —

— **INTENSIVE SHORT COURSES** —

“Troubleshooting HPLC Systems”

by **John Dolan**

**“Practical Advice for Developing Better
GC Methods”**

by **Daron Decker**

**“Introduction To Laboratory Current Good
Manufacturing Practices (cGMPs):
A Systems Based Approach”**

by **David Bliesner**

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

On Wednesday, you are invited to an afternoon session of Vendor Seminars, Special Topic Sessions and a concurrent Exhibition of chromatography supplies and instrumentation. Other highlights of Wednesday afternoon are the complimentary Reception in the Exhibit Hall, and the poster session. The Reception, 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

Tuesday, May 15, 2007

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

“Troubleshooting HPLC Systems”

“Practical Advice for Developing
Better GC Methods”

“Introduction to cGMP's: A
Systems Based Approach”

Wednesday, May 16, 2007

8:00am - 12:00pm **Concurrent Short Courses**
(continued)

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

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

1:00pm - 3:00pm **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, Special Topic Sessions, Equipment Exhibition, Reception and Poster Session.

Thursday's sessions require registration.

Thursday, May 17, 2007

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 —**Tuesday & Wednesday, May 15 & 16**

The Minnesota Chromatography Forum Education Committee presents three short courses in conjunction with the 2007 Spring Symposium. These courses will be conducted all day May 15th and the morning of May 16th at the Earle Brown Heritage Center. **The registration deadline is May 4, 2007.** Course fees are \$430 and include luncheons, refreshments, and course materials.

The course fee is \$100 (undergraduate), and \$200 (graduate) for students. A current fee statement from your school is required for the student discount.

— SPECIAL TOPIC SESSIONS —**Wednesday Afternoon, May 16**

Special Topic Sessions will be held on Wednesday 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.

1:00pm **HPLC**2:00pm **GC****— FOCUS TOPICS & INVITED SPEAKERS —****Thursday, May 17****HPLC**

Dr. Ron Majors,
Agilent Technologies

Gas Chromatography

Dr. Robert Mustacich,
RVM Scientific

Mass Spectrometry

Dr. Carlos Gusti Gartner,
Harvard Medical School

COURSE OUTLINES**“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 help 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.

Students with a working knowledge of HPLC with some hands-on experience will benefit most from this course.

“Practical Advice for Developing Better GC Methods”**by Daron Decker**

This advanced GC course will explore how to properly develop a method utilizing and applying GC theory, software programs and common sense. Attendees will be taught how to choose a column (dimensions and stationary phase type), optimize the carrier gas and temperature conditions and tweak their method until separation is optimized. Analysts should come away with the necessary skills to optimize existing and future methods for faster run times, better resolution, and/or overall robustness.

Course Outline:

1. Review of GC Theory
2. Carrier Gas Considerations (Type, Flow rate, EPC)
3. Maximizing Sample Introduction Efficiency
4. Effects of Stationary Phase Type (Selectivity)
5. Effect of Column Dimensions (Internal diameter, length, and film thickness)
6. Effect of Temperature
7. Method Translation Software Considerations
8. Maximizing Resolution vs. Fast GC
9. Conclusions, Discussion, Q&A

**“Introduction To Laboratory Current Good
Manufacturing Practices (cGMPs):
A Systems Based Approach”**

by David Bliesner, Ph.D.

This course is a solid, one-day, introductory level course based on the FDA’s newly adopted quality systems based approach for auditing cGMP facilities. The course materials are based on internal FDA guidance documents and current best practices of the pharmaceutical industry. The course is augmented with real world examples recently encountered by the instructor. This is an excellent means to introduce analytical chemists to laboratory cGMPs and the concepts of current good manufacturing practices in general. It is also an excellent means for laboratory managers to evaluate how their laboratories measure up to current industry standards.

- Introduction to the Systems Based Approach to Laboratory cGMPs
- Laboratory Managerial and Administrative Systems (with practical exercise)
- Laboratory Documentation Practices and Standard Operating Procedures (with practical exercise)
- Laboratory Equipment Qualification and Calibration (with practical exercise)
- Laboratory Facilities (with practical exercise)
- Methods Validation (with practical exercise)
- Laboratory Computer Systems (with practical exercise)
- Laboratory Investigations (with practical exercise)
- Glossary of Common Terms
- Selected References
- Selected Vendors
- Review of Selected References
- Where to Get Help
- Questions and Answers

ALL SHORTCOURSES ARE 1.5 DAYS IN LENGTH – ALL DAY TUESDAY AND WEDNESDAY MORNING

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 the 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.

**BIOGRAPHICAL SKETCHES
OF COURSE INSTRUCTORS (continued)**

Dr. David M. Bliesner, Ph.D. is President of Delphi Analytical Services, Inc. (DAS). DAS provides CGMP products and services to the Pharmaceutical, Contract Analytical Laboratory, and Allied Industries. Dr. Bliesner has a bachelors degree from the U.S. Naval Academy, a doctorate in Analytical Chemistry from the University of Vermont, and an MBA from the School of Hard Knocks. He possesses a unique combination of science and business skills and experience. These skills and experiences range from analytical R&D in the pharmaceutical industry to business plan preparation and market analysis in the chromatography supplies and contract analytical and instrument services businesses. Dr. Bliesner's expertise includes quality assurance auditing of GMP laboratories, developing and implementing corrective action plans for analytical laboratories, high performance liquid chromatography, experimental protocol design and project management, and designing, building, staffing, and qualifying cGMP/GLP laboratories. Over the last several years he has been part of the "Expert Consultant" contingent for companies currently operating under consent decree with the FDA where he has helped establish CMGP Laboratory Audit Systems. Dr. Bliesner is also author of "Establishing a CGMP Laboratory Audit System: A Practical Guide" and "Validating Chromatographic Methods" both by John Wiley & Sons, Inc. publishers.

Refer to the MCF Web Page

For Updated Symposium Info

www.minnchrom.org

BIOGRAPHICAL SKETCH

***** KEYNOTE SPEAKER *****

**Professor Jim Jorgenson
Department of Chemistry
University of North Carolina**

James Jorgenson was born in Kenosha, Wisconsin in 1952. He received his undergraduate education at Northern Illinois University where he received a B.S. in Chemistry in 1974. Following this he entered graduate school at Indiana University, where he worked in the research group of Professor Milos Novotny, and received a Ph.D. in Chemistry in 1979. His Ph.D. research concerned two principal areas; the study of mammalian pheromones, and the development of new detection schemes for liquid chromatography

Dr. Jorgenson joined the faculty of the University of North Carolina as an Assistant Professor of Chemistry in 1979. He was promoted to Associate Professor in 1985, Professor in 1987, appointed the Francis P. Venable Professor of Chemistry in 1994, and William Rand Kenan, Jr. Distinguished Professor of Chemistry in 1999. He was Chair of the Chemistry Department from 2000 to 2005.

Among the honors he has received are the American Chemical Society Analytical Division Award in Chemical Instrumentation in 1992, the Martin Medal of the Chromatographic Society in 1992, elected a Fellow of the American Association for the Advancement of Science in 1992, the American Chemical Society Award in Chromatography in 1993, the Golay Medal in 1994, the Eastern Analytical Symposium Award in Separation Science in 1995, the Torben Bergman Medal of the Swedish Chemical Society in 1996, the Anachem Award in 1996, the Dal Nogare Award in 1998, the Esselen Award for Chemistry in the Public Interest in 2004, the Pittsburgh Conference Analytical Chemistry Award in 2005, and the American Chemical Society Award in Analytical Chemistry in 2007.

Professor Jorgenson is one of the originators of capillary electrophoresis, with his first publications on this topic appearing in 1981. His current research interests include ultra-high pressure liquid chromatography, multidimensional separations, microscale separations coupled to mass spectrometry, and the design of detectors for chromatography and capillary electrophoresis.

***** KEYNOTE ADDRESS *****

Thursday, May 17

**"Ultra High Pressure
Liquid Chromatography"**

**By Professor Jim Jorgenson
Department of Chemistry
University of North Carolina**

Abstract

The history of HPLC has seen a progression in the use of columns packed with particles of decreasing size. Decreasing particle size has led to smaller values of the plate height and faster optimum velocities. Due to pressure limitations of conventional HPLC equipment this trend has translated, not into columns of increasing separation efficiency, but instead into shorter columns offering faster analysis times. The 400 bar pressure limit of conventional HPLC technology is an arbitrary limit. The use of ten-fold higher pressure allows the use of columns 40 cm long, packed with 1 micron particles, delivering 250,000 theoretical plates with column void times of a few minutes.

Significant amounts of heat can be generated in pumping solvents at optimum velocities through such a highly restrictive bed of particles. In a column of conventional diameter (4.6 mm), this heat will result in significant axial and radial temperature gradients, which will lead to excessive band spreading. Packed capillary columns can be used to reduce this difficulty. The design and performance of systems capable of isocratic and gradient elution liquid chromatography in packed capillary columns at ultra-high pressures will be described. Results of UHPLC separations of small organics, peptides and proteins will be discussed.

“Ultra High Pressure Reversed Phase Liquid Chromatography in Packed Capillary Columns”, J.E. MacNair, K.C. Lewis, and J.W. Jorgenson, *Analytical Chemistry*, **69**, 983-989 (1997).

“Ultra High Pressure Reversed-Phase Liquid Chromatography: Isocratic and Gradient Elution Using Columns Packed with 1.0 μm Particles”, by John MacNair, Kamlesh Patel, and J.W. Jorgenson, *Analytical Chemistry*, **71**, 700-708 (1999).

“The Use of 1.5 micron Porous Ethyl-Bridged Hybrid Particles as a Stationary Phase Support for Reversed-Phase Ultra-High Pressure Liquid Chromatography”, J. Scott Mellors, and James W. Jorgenson, *Analytical Chemistry*, **76**, 5441-5450 (2004).

“In-depth Characterization of Slurry Packed Capillary Columns with 1.0 micron Nonporous Particles Using Reversed Phase Isocratic Ultra-High Pressure Liquid

Chromatography”, Kamlesh D. Patel, Anton D. Jerkovich, Jason C. Link and James W. Jorgenson, *Analytical Chemistry*, **76**, 5777-5786 (2004).

“Linear Velocity Surge Caused by Mobile-Phase Compression as a Source of Band Broadening in Isocratic Ultrahigh-Pressure Liquid Chromatography”, A. Jerkovich, S. Mellors, J.W. Thompson, and J.W. Jorgenson, *Analytical Chemistry*, **77**, 6292-6299 (2005).

“Improved Protein Recovery in Reversed-Phase Liquid Chromatography by the Use of Ultrahigh Pressures”, John Eschelbach and J.W. Jorgenson, *Analytical Chemistry*, **78**, 1697-1706 (2006).

Refer to the MCF Web Page

For Updated Symposium Info

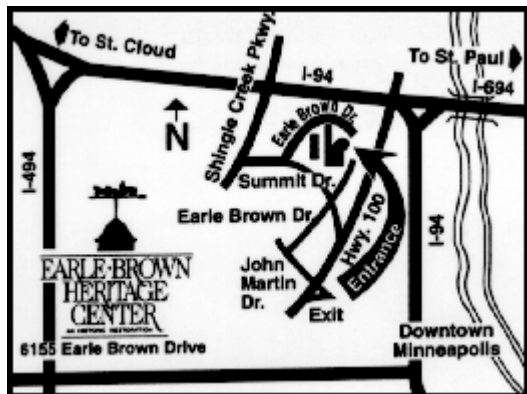
www.minnchrom.org

Listings for "Positions Wanted" and "Positions Available" will be posted on the Job Board. Additional

JOB BOARD

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

2007 MCF SPRING SYMPOSIUM / COURSE REGISTRATION FORM

MCF MEMBERSHIP ONLY (1-YEAR) \$ 20.00 \$ _____

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

Spring Symposium (.5 CEU) (May 17) \$ 100.00 adv-reg. \$ _____

Advanced Registration Deadline – May 5 \$ 135.00 on-site \$ _____

Spring Symposium with course (May 15-17) \$ 60.00 \$ _____

Spring Symposium: Full Time students (May 17) \$ 25.00 \$ _____

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 17) but short course participants may register for the Spring Symposium for only \$60! Deadline for Course Registration is May 4, 2007.

“Troubleshooting HPLC Systems” (May 15-16) \$ 430.00 \$ _____

“Practical Advice for Developing Better GC Methods” (May 15-16) \$ 430.00 \$ _____

“Introduction to cGMP’s: A Systems Based Approach ” (May 15-16) \$ 430.00 \$ _____

TOTAL \$ _____

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 _____

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

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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

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.