



Selective Applications of Comprehensive Two-Dimensional Gas Chromatography

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Abstract:

Comprehensive two-dimensional gas chromatography (GCxGC) is an emerging high-resolution separation science technology with a growing number of applications in industry, academia, and federal government agencies. GCxGC instruments function based on a tandem set of GC columns that are interfaced through an on-column inlet device (called a modulator), whose role is the sequential transfer of sample effluent fractions from the first column into the second column. The first dimension chromatogram is operated at similar conditions as in conventional GC, and the second dimension is operated at high-speed conditions that produce a secondary chromatogram every few seconds. The ensemble of the series high-speed secondary chromatograms are then assembled to form a virtual multi-dimensional chromatogram in which each separated substance can be identified by their retention coordinates.

GCxGC is capable of producing high-resolution separations in a time frame similar to that obtained by conventional GC, while providing peak capacities that are 2-3 orders of magnitude higher than in 1D GC, thus improving the information throughput for the analyst. In addition, GCxGC chromatograms have revealed the structured nature of the molecular world, which offers great potential in the fingerprinting of new or unknown substances. In this presentation an overview of the instrumentation will be given, and applications in industrial, environmental and bioanalytical chemistry that have been developed in our laboratory will also be presented.

About the Speaker:

John Dimandja received his B.A. in mathematics from Miami University, and his M.S. and Ph.D. in Analytical Chemistry from Southern Illinois University. Prior to joining the Chemistry Department at Spelman College in 2002, he worked at the NASA/Ames Research Center from 1991 to 1997, and the Center for Disease Control from 1997 to 2002 where he developed analytical methods for use in space research and environmental biomonitoring respectively. At Spelman College he has maintained an active research program (focused on comprehensive two-dimensional separation science instrument and method development) that has been supported by federal grants from NSF and NIH, and corporate support from companies such as Kimberly Clark, IFF and UOP. John has authored 30 peer-reviewed publications and nearly 200 presentations at local, national and international conferences, and he has organized and/or chaired several conference symposia on GCxGC at PITTCON, ACS, and the International Symposium on Capillary Chromatography.

Location:
D'Ignazio's Towne House
117 Veterans Square
Media, PA 19063

Times:
Executive Mtg - 5:00 pm
Social "Hour" - 5:45 pm
Dinner - 6:30 pm
Presentation - 7:30 pm

Directions:
See below

Cost of Dinner:
\$30 or MC/Visa /AmEx

NOTE TO STUDENTS: Full-time students with valid ID may attend dinner meetings at half price. **Faculty members at colleges and universities are urged to bring one or more students to the meeting. If they do, they also can attend at half-price.**

Dinner Choices: Chicken with Bread Stuffing, Eggplant Parmesan, or Veal Parmesan. Please specify choice of entree when making dinner reservations.

For Reservations:

Please register/call before 4 p.m., **Friday, September 10th, 2010**. Please note that "no-shows" will be billed for the dinner.

Late reservations: We still want you to attend, so call now. However, we cannot guarantee your entrée selection for dinner.

Contact: We strongly recommend online registration <http://www.cfdv.org/> but you can also e-mail sheree@cfdv.org, or FAX 610-485-9467. For FAX/e-mail, please include your name, employer, work telephone & meal choice. Alternatively, call Ms. Sheree Gold at 610-742-4981 and provide same information.

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Directions to the Towne House

Take I-95 to the Blue Route, I-476; take Exit 3 (Media). Go west on Baltimore Pike past intersection of Rt. 252. The Towne House is 10 blocks further, on the right corner of Veterans Square. (Address: 117 Veterans Square, Media, PA 19063; Phone: 610-566-6141)

