



THE  
CHROMATOGRAPHY  
FORUM  
OF DELAWARE VALLEY

**September Meeting**  
Tuesday, September 16, 2008



**Prof. Janusz Pawliszyn**  
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University of Waterloo, Waterloo, Ontario  
Canada

## New Developments in Solvent-Less Sample Preparation Techniques

**Abstract:** In this presentation, new developments in solvent-less sample preparation techniques with emphasis on Solid-Phase Micro-Extraction (SPME) and related techniques will be discussed. In cold fiber SPME, the internally-cooled, coated fiber device is temperature-controlled and used in combination with a CTC CombiPAL autosampler. Up to 10 times increase of extraction efficiencies was observed even under the limited sample temperature. The cold fiber technology facilitates faster extractions and higher sensitivities for both volatile and semi-volatile sample components in food matrices. Thin-film SPME samplers were made by using polydimethylsiloxane thin-film (membrane) as the extraction phase. This technique offers the advantage of higher surface-to-volume ratio facilitating much higher extraction rates and higher sensitivities than current SPME fibers. Kinetic calibration or equilibrium calibration with the standards in the extraction phase is used to introduce an isotopically-labeled internal standard. This approach is very useful in high sensitivity multiparameter monitoring both *in situ* and *in-vivo*. The automation of parallel solid-phase microextraction (SPME) coupled to liquid chromatography-tandem mass spectrometry (LC-MS/MS) has been accomplished using a 96 multi-well plate format, a SPME multi-fiber device and a three-arm robotic system. Sample throughput has been drastically increased. The optimized automated SPME-LC-MS/MS platform was fully validated for the high-throughput determination of Ochratoxin A in human urine. The proposed methods allowed the automated analysis of >150-200 samples per day, while achieving excellent accuracy and precision and requiring minimal sample pre-treatment of biological fluids. Details of these newer sample preparation technologies will be covered. Co-authors are: Yong Chen, In-Yong Eom, and Ouyang Gangfeng

**About the Speaker:** Dr. Pawliszyn received his B.S. and M.Sc. Chem.Eng. degrees from Technical University of Gdansk, Poland and his Ph.D. in 1982 from Southern Illinois University. He is an author of over 350 scientific publications and a book on Solid Phase Microextraction. He is a Fellow of Chemical Institute of Canada, Editor of *Analytica Chimica Acta*, *Trends in Analytical Chemistry* and a member of the Editorial Board of *Journal of Separation Science*, *Analyst*, *Chemia Analityczna* and *Comprehensive Analytical Chemistry* book series. He received the 1995 McBryde Medal, the 1996 Tswett Medal, the 1996 Hyphenated Techniques in Chromatography Award, the 1996 Caledon Award, the Jubilee Medal 1998 from the Chromatographic Society, U.K., the 2000 Maxxam Award, the 2000 Varian Lecture Award

from Carleton University, the Alumni Achievement Award for 2000 from Southern Illinois University, the Humboldt Research Award for 2001, 2002 COLACRO Medal, 2003 Canada Research Chair. In 2006 he was elected to the most cited chemists by ICI and in November, 2008 he will receive the A.A. Benedetti-Pichler Award at Eastern Analytical Symposium. He presently holds the Canada Research Chair and NSERC Industrial Research Chair in New Analytical Methods and Technologies. Contact information: Tel: (519) 888-4641 Fax: (519) 746-0435; e-mail: [janusz@uwaterloo.ca](mailto:janusz@uwaterloo.ca); Home page for research group: <http://www.science.uwaterloo.ca/chemistry/pawliszyn>

**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:**  
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 Marsala, Crabcakes or Eggplant Parmesan with marinara sauce. Please specify choice of entree when making dinner reservations.

**For Reservations:** Please register/call before 4 p.m., **Thursday, September 11, 2008.** 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/meetings.php> but you can also e-mail [sheree@cfdv.org](mailto: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 610-485-3479 and provide same information.

**List of Officers.** Please contact any officer for Forum information, to find out how to participate in the Forum or Forum Activities. The CFDV website is <http://www.cfdv.org/>.

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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)

