NanoLiter LLC Course and Particulars.

The course is presented to teach BS to Ph.D. level scientist, Q/A personnel and managers in bio, HSL, science, defense, forensic and related disciplines of analytical chemistry. It has strong reference to a wide breath of analytical chemistry and even side topics like LO 3D printing and manufacturing possibilities of induction based fluidics.

The course is tailored to fluidic applications from MS to TLC from simple to more powerful applications. The physics and chemistry of induction based fluidics is describe with emphasis on the wide are of applications across all of analytical chemistry including, but not limited to MS.

We'll show the most efficient (100%) and fastest (sec) way to place liquids into and onto instruments and targets of all types. We'll show our latest work in support of the US Army and work done for Merck and other clients/customers this last year. We explain why you should consider learning to "fly" liquids using electric fields to targets of all types for even viscous liquids and we review references.

We review papers published by us and other ongoing work and successes, of our users, regarding Induction Based Fluidics and we project the future.

Attendees get a pdf of our 2 day course manual and selected handouts of our newest work and the work of our users that include U's of Ill, WI, CA, Cinn., MUSC, Wash. U., USF, USU, US Army ECBC and Natick, Abbott, Biogen Idec, Genentech, Amgen, Hitachi, Allergan, Sciex, Spark, Douglas, NIH, NIST, USDOE INL, Ga Tech, Duquesne and more.,

To make a reservation email us at adsauterjr@gmail.com or though nanoLiter.com.

The course fee is $275.00 for the 4 hour + course to be held at a tbd location near the convention center.
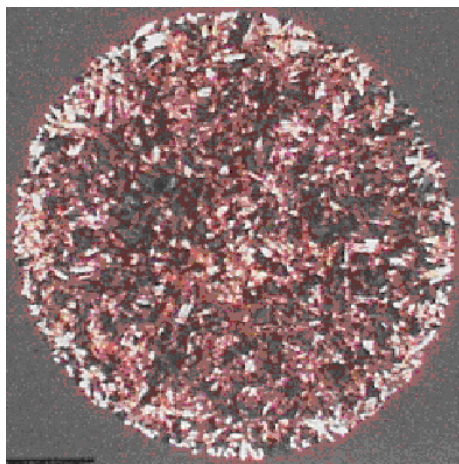
Introduction, Overview of IBF and Applications.

Videos of IBF
ESI w/100% MS sample introduction efficiency.
LC/MALDI with msec. depositions.
3D-Print, PVA.
IBF and Mixing.
nanoLiter dispensing, a demonstration, all participate.

Fundamentals
Conduction and induction.
The chemistry and physics of ESI, IBF contrasted.
Trajectories of drops. Thermodynamics.
Directing, measuring drops to targets.
Introduction summary

Peer Review Paper* Application Review. IBF: ESI, MALDI, SIMS, LDI other techniques.
Why nanoliters?
Excellent crystals for MALDI.
100% efficient ESI, IBF yields standard ESI mass spectra.
Parallel dispensing.
Viscous liquids, whole blood, serum, glues.
Quick summary and peer review papers.

Dispensing: Video of making one channel and 384 channel depositions.
MALDI (peptides,proteins, polymers,cells)
SIMS (explosives, drugs)
Direct ESI analysis of mixtues: urine;blood;coffee; cells liquids;more.
Other Apps: TLC,IR Spec, Chemical warfare, HLS, etc.
Review of mass spectra with study, Organics, Inorganics, Organometallics.

Instrumentation
nanoLiter Cool Wave MS, dispensers, LC's, syringes, pipettes, embodiments.
Cool video demo (Flying nLs into levitated uLs!)
Calibration.
Energy regime
Tips
Femtogram and attogram sensitivity.
Practical sample intro/handling issues.

New developments.
3D Printing applications for MS, TLC,MALDI.
Millisecond sample analysis
N=10 or 20 multiplexing.
Single molecule?
Future, a new very low cost dispenser.

Summary
Q&A.

Drew Sauter's Bio.

User's and guest speakers will be invited to discuss observations on ESI, MALDI and Dispensing.

Drew Sauter invented and patented induction based fluidics(IBF). It is the fastest, most efficient (100%) technique for launching samples into LC/ESI/MS systems and for LC/MALDI. IBF can also be used for parallel dispensing and more including LO 3D printing. Drew founded nanoLiter LLC and has collaborated with over fifty groups worldwide on IBF. Sciex offered to license the technology and devices have been sold to US Army, Genentech, Biogen Idec, Amgen, NIH, NIST, U's of CA,WI, ILL and 50 other corporations and other organizations. America's greatest mass spectroscopist has called our ability to "shoot" 100% of cellular liquids using IBF into ANY ESI, "exciting," and IBF as "great."

Prior to this work, Drew developed MS methods and technology in support of defense, energy and environmental projects at MRI. He developed the core GC/MS methods used environmentally across the USA since the 70's. He was on the team that built the first national database of pollutants from 20,000 data files of USA rivers publishing on signal processing, pattern recognition and database building. Later he purchased Dr. Robert Finnigan's first TSQ and did the first LC/MS/MS HTS in the 80's, hands on. He directed MS/MS R&D with Hunt and Shabanowitz and directed seminal funding to Dr. S. Houk, the inventor of ICP/MS. He acquired funding for Extrel and Dr. Willoughby to develop new LC/MS technology that was purchased by Waters, that being their entree' into MS.

As a consultant, he was hired by USDOJ and played a key role in winning a nine-figure litigation against 20 of the 40 largest firms in the USA using applied multivariate statistics and pattern recognition. For WMI, he developed an economic model for a $20M lab which paid for itself in under three years as he predicted. In the 90's he won a $M contract at Los Alamos, for building a data management systems for 34 instrumental chemistry techniques that also addressed data integrity.

Then, after reading ca. 600 papers on ESI over a two year period, he invented and patented IBF, a technique that improves MALDI and allows for 100% of liquids to be "shot" into any ESI or LC/ESI. This technology he predicts will replace the spray part of ESI. It is IBF that is at the core of this course.

 Drew founded nanoLiter LLC and nanoliter.com and sells devices and licenses technology. He has worked with firms on four continents, and been hired as a consultant by most MS firms for business issues of MS to LC/MALDI. He has also been hired as an expert in MS by seven different branches of the US government, and he has given numerous invited presentations and written twelve patents, hundreds of reports, peer review and other papers, our most recent ten being addressed in this course. He holds an MS degree from Marquette and a BS degree from Duquesne University both in chemistry.