

# TechTIPS

Timely, Informative Productivity Solutions to Help You Work Smarter!

Mass Spectrometry

Molecular Spectroscopy

Elemental Analysis

Chromatography



Receive a **FREE GC Capillary Column** when you register for the **PolarisQ** course!

Choose from the following:

- TR-5MS Non-Polar Column (p/n 260F142P)
- TR-1701 Mid-Polarity Column (p/n 260Q142P)
- TR-Wax MS High-Polarity Column (p/n 260X142P)

(Participant to receive column at the completion of the course.)

## TechTIP: Heighten Selectivity with Your PolarisQ™

The analysis of components that are present in complex matrices can be hindered by possible interferences from the matrix. In order to gain an additional level of selectivity and reduce interferences, use the **MS/MS scan function**. This function will heighten selectivity, which is accomplished by trapping the ion that is generated by the compound of interest, and fragmenting it further. Then, as product ions are formed, one ion can be selected for quantitation.

*Note:* The matrix may contain the same precursor ion but—because it is chemically different from the compound of interest—it will generate different product ions that provide the selectivity needed to quantify the compound of interest. All these processes can be set up easily, using the Xcalibur® software associated with your PolarisQ.

**Want to know more?**  
Then don't miss this course . . .

### PolarisQ Operations

May 21-24, 2007 | West Palm Beach, FL

This course will familiarize the user with basic operation of the TRACE GC Ultra™ oven, the PolarisQ mass spectrometer and the Xcalibur software. Lectures and hands-on experiments further enhance the learning experience.

*Prerequisite:* Students should have a general understanding of mass spectrometry, gas chromatography and Windows® software.

#### Topics include:

- TRACE GC Ultra maintenance and setup
- PolarisQ maintenance and setup
- Xcalibur – Qualitative Analysis, Processing
- Xcalibur – Quantitative Analysis, Processing
- Merlin reports
- User libraries
- Special topics – MS/MS
- Chemical ionization

Pre-register at [www.thermo.com/education](http://www.thermo.com/education)

## TechTIP: Avoid a Foggy Window on Your LTQ XL

Is the viewing window on the Ion Max Source of your LTQ XL getting wet from condensation? Then you probably have the gas pressure set too low (usually the sheath gas pressure). To correct this, increase the gas pressure in the associated tune file. This will allow for greater desolvation efficiency.

**Want to know more?**  
Then don't miss this course . . .

### LTQ XL Operations

April 30-May 3, 2007 | West Palm Beach, FL

This course introduces new users to their LTQ XL mass spectrometer, with an emphasis on small molecule applications. The course

includes lecture material, software training and intense hands-on sessions that involve tuning, calibration, and comprehensive LC/MS method development using both electrospray and atmospheric pressure chemical ionization. A detailed training manual and a CD containing all data acquired during the training course are included, along with additional course materials.

#### Topics include:

- Ion trap theory
- Tuning and calibration
- Hands-on APCI and ESI MS
- Instrument method development for LC/MS
- Multi-stage MS<sup>n</sup> method building
- Quantitative analysis
- Xcalibur software
- Basic LTQ XL maintenance

Pre-register at [www.thermo.com/education](http://www.thermo.com/education)

## Courses so new you won't find them in the 2007 Course Catalog!

### **New!** LTQ XL ETD

This lecture/lab course is designed for experienced LC/MS users who perform protein analysis using electron transfer dissociation source (ETD) in conjunction with the LTQ XL mass spectrometer. Featured topics include the use of ETD as an alternative to collision-induced dissociation (CID) for the structural analysis of proteins and peptides, and the identification of post-translational modifications (PTM). Course includes a detailed training manual and a CD containing data acquired during the course.

#### Topics include:

- Ion trap theory
- ETD theory
- Tuning and calibration
- Hands-on ESI and NSI MS
- Instrument method development for nano LC/MS
- Data dependent method design using ETD and CID
- PTM methods
- Xcalibur software for qualitative methods
- BioWorks™ software
- Basic LTQ XL and ETD maintenance

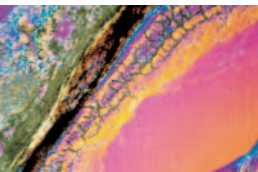
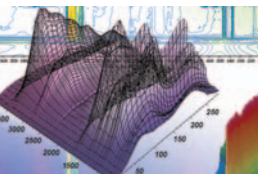
### **New!** DSQ II Productivity Solution 8270 Training Course

Learn how the components of the 8270 Productivity Solutions can help you implement the EPA method using the DSQ II GC/MS system. The course will cover method development and how to acquire and develop data using Xcalibur operating software and EnviroLab Forms 2.0.

#### Topics include:

- Running samples
- Facilitation of workflow using EnviroLab Forms
- Creating a master method and batch templates
- Processing acquired data files
- Creating/printing reports using a variety of reporting methods
- Customizing sample information, QC checks, batches and reports

For upcoming dates and locations of these **NEW** courses, call **1-800-532-4752**

**TechTIP: Determine Exposure Time**

Use OMNIC™ 7.3 (or higher) to determine the proper exposure time specific to the desired signal-to-noise ratio of your spectrum. This is accomplished through the **Collect/Experiment Setup menu** in the collect tab of the software.

**Want to know more?  
Then don't miss this course . . .**

**Almega XR Raman Operations**

2.0 CEU credits

May 8-10, 2007 | Schaumburg, IL

Learn system configuration and software through lecture and hands-on training, and get the most from your Raman instrument! *Recommended:* Students are encouraged to bring samples to analyze as the course covers post-collection data manipulation, sample preparation, and the use of system tools.

**Topics include:**

- Raman theory
- Experiment setup and configuration
- System alignment
- Creation and use of libraries
- Mapping using Atlas™ software

**Pre-register at [www.thermo.com/education](http://www.thermo.com/education)**

**TechTIP: Achieve Clearer Transmission Spectra**

Channeling or "fringing" is often seen in transmission spectra when using a compression cell that has an air gap. To reduce or eliminate fringing, follow these rules...

**Non-resilient sample:** Simply run the compression cell in an open-faced fashion.

**Resilient sample:** Add one to two grains of KBr powder to the compression cell. This allows the background to be collected through an area with a closer refractive index match to the window material. This will reduce/eliminate the fringing seen as an undulation in the baseline.

**Want to know more?  
Then don't miss this course . . .**

**Fundamentals of FT-IR Analysis Operations**

3.0 CEU credits

June 4-8, 2007 | Madison, WI

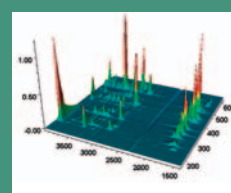
This course will give beginning- to intermediate-level users of FT-IR spectrometers a comprehensive knowledge of FT-IR analysis. Students will learn through instrumental demonstrations using analytical software, hands-on activities and animated presentations.

Participants will also receive a molecular modeling kit and a revised course book – great for a reference source!

**Topics include:**

- OMNIC FT-IR software operations
- Sample handling
- Use and care of ATR and diffuse reflectance accessories
- Spectral interpretation introduction
- FT-IR spectrometer validation

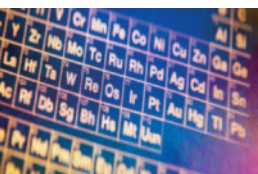
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**Upgrade to OMNIC 7.3 today and collect data faster, easier! Includes many NEW features, PLUS 7 bonus features to give you the best value for your lab!**

**A \$5500 value, yours for only \$1500!\***

To learn more visit [www.thermo.com/omnic73](http://www.thermo.com/omnic73).  
(\*Analytical OMNIC 7.3 upgrade package.)

**TechTIP: How to Run the Same Wavelength Twice**

During method development, you will find it desirable to run the same wavelength twice within the same method but using different parameters. Those parameters may include:

- with and without internal standard
- using two different calibration ranges
- using different center widths and background points; etc.

To run the same wavelength twice, go to **Method tab** and click, **Elements**. Then, right-click on the "wavelength of interest" and select **Duplicate**.

**Want to know more?  
Then don't miss this course . . .**

**iCAP 6000 Series ICP Operator Training**

May 22-25, 2007 | West Palm Beach, FL

Learn the essential aspects of instrument operation including iTeva 32-bit software. Topics covered in both lecture and laboratory settings include atomic spectroscopy theory, instrument optimization, line selection, method development (e.g., checking and aligning sub-array peaks, calibration curves, setting background correction points, using interfering element correction, and setting internal standards), and overcoming interferences. Students will also have an opportunity to set up, optimize, and run samples. Course will also highlight special iCAP 6000 Series features including intelligent optimization routines, and popular data collection modes.

**Topics include:**

- Theory of ICP
- Interferences in ICP
- Maintenance and instrument optimization
- Method development
- iCAP software features
- Use of MS Office Publisher™ (for generating reports, trend charts)
- Use of Cetac ASX520 autosampler

**Pre-register at [www.thermo.com/education](http://www.thermo.com/education)**

**TechTIP: Running Brine Samples through Your Intrepid**

The Intrepid was designed specifically for ease-of-use and reliability – even when running a complex sample like brine. To get the best results when running a brine sample, try using a larger bore center tube and nebulizer. These simple hardware changes, used in conjunction with an internal standard, will insure accurate results.

**Want to know more?  
Then don't miss this course . . .**

**IRIS Intrepid ICP Operations**

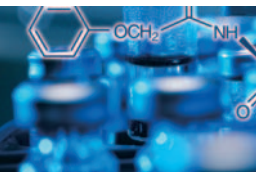
June 5-8, 2007 | Schaumburg, IL

This course covers the essential aspects of instrument operation including TEVA 32-bit software associated with your upgraded IRIS Advantage or the IRIS Intrepid/IRIS Intrepid II. Students will also gain hands-on experience optimizing the instruments, setting and running methods and using the autosampler to analyze samples.

**Topics include:**

- Atomic spectroscopy theory
- Instrument optimization
- Methods development
- Overcoming interferences

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Receive a **FREE GC Capillary Column** when you register for the **DSQ/DSQ II** course!

Choose from the following:

- TR-5MS Non-Polar Column (p/n 260F142P)
- TR-1701 Mid-Polarity Column (p/n 260Q142P)
- TR-Wax MS High-Polarity Column (p/n 260X142P)

(Participant to receive column at the completion of the course.)

### TechTIP: Increase Analytical Selectivity of Your GC-MS

Increase the sensitivity of your GC-MS method by using the **SIM mode** (Selected Ion Monitoring) to acquire data. With this technique, the quadrupoles are "parked" on selected ions, allowing only the selected  $m/z$  to pass through to the detector. SIM mode provides greater sensitivity because the signal-to-noise ratio for the target component can be much higher in SIM than in full scan.

SIM mode works great for target components in a complex matrix where the analytes of interest produce "unique ions" not present in the matrix (this way, matrix components are excluded from the detector).

By setting the "dwell time" and SIM window to take full advantage of the DSQ™ II system's speed and resolution, sensitivity can be enhanced as much as a 100-fold over full scan. Improved selectivity can also result when using SIM because of a decrease in response of background noise. SIM mode selections are set up easily in the Xcalibur® software used with the DSQ II GC/MS.

Want to know more?  
Then don't miss this course . . .

### DSQ/DSQ II Operations

April 23-26, 2007 | West Palm Beach, FL

Gain a complete understanding of basic operation and maintenance of the TRACE GC Ultra™ and DSQ/DSQ II mass spectrometer using Xcalibur software. This course consists of lecture and laboratory experiments, where participants will create qualitative and quantitative analysis, processing methods, and reports. Lectures on both instrument and software will be provided, as well as additional course notes.

#### Topics include:

- Set-up and maintenance of the DSQ/DSQ II, TRACE GC Ultra, and the AS3000 and TriPlus™ autosamplers
- Xcalibur processing methods (qualitative and quantitative)
- Merlin reports
- User libraries
- Chemical ionization
- Probe analysis

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### TechTIP: Shorten Chromatographic Run Time

To shorten run time when using sub 2  $\mu\text{m}$  particle diameter stationary phases, use high linear velocities and aggressive gradient profiles. The decrease in run time can usually be obtained with minimal loss in chromatographic resolution.

Want to know more?  
Then don't miss this course . . .

### Accela U-HPLC Training

June 26-27, 2007 | West Palm Beach, FL

This introductory course is designed for users who are new to the Accela™ U-HPLC System. Through lectures and hands-on lab experience, students will gain an understanding of the method development process related to liquid chromatography for standard and high-pressure separations.

#### Topics include:

- U-HPLC theory and stationary phase design
- Modes of chromatographic separation (i.e., Reversed Phase, Normal Phase, etc.)
- Developing robust methods for high-pressure separations
- Mobile phase selection
- Troubleshooting separations

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### 2007 Course Schedule

COURSE TITLE	April	May	June
<b>CHROMATOGRAPHY AND MASS SPECTROMETRY</b> (WEST PALM BEACH, FL; SAN JOSE, CA; BOSTON, MA; KANSAS CITY, MO; LAS VEGAS, NV)			
LCQ Biotech Operations		7-10 FL	
LTO™ XL Operations	2-5 FL • 30	→ 3 FL	4-7 FL
LTO XL Biotech Operations		14-17 FL	
LTO Orbitrap™ Operations		7-10 FL	11-14 FL
LTO Orbitrap Biotech Operations	16-19 FL		25-28 FL
LTO FT™ Ultra Small Molecule Operations	2-5 CA		
TSQ Quantum Operations	2-5 FL	14-17 FL	4-7 FL
TSQ Quantum Quick Quan		30	→ 1 FL
TSQ Quantum LCQuan	10-12 FL		
MSQ+ Operations	17-19 CA		12-14 CA
PolarisQ Operations		21-24 FL	
DSQ/DSQ II Operations	23-26 FL		4-7 FL
ToxLab™ Software Operations		29-31 FL	
BioWorks™/SEQUENT® Software Module	26-27 CA		26-27 FL
Xcalibur® Software Module	23-25 CA	30	→ 1 FL
ChromQuest™ Software Module – GC	3-5 FL		
ChromQuest Software Module – LC		22-24 FL	
Accela U-HPLC			26-27 FL
MetWorks Software Module		15-16 CA	19-20 FL
EI/CI Interpretation Module	9-12 FL		
Basic Gas Chromatography	17-18 FL		
Gas Chromatography Method Development	30	→ 2 FL	
DSQ Productivity Solutions 8270 Training			11-14 FL
LTO XL ETD	Call 1-800-532-4752 for information.		

COURSE TITLE	April	May	June
<b>MICROANALYSIS (MADISON, WI)</b>			
NORAN System SIX Operation			26-29 WI

#### Training Institute – North America

West Palm Beach, FL • Registrar's Office: 1-800-532-4752 • [us.training.analyze@thermo.com](mailto:us.training.analyze@thermo.com)

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COURSE TITLE	April	May	June
<b>ELEMENTAL ANALYSIS</b> (WEST PALM BEACH, FL; SCHAUMBURG, IL; MADISON, WI; DEARBORN, MI)			
X Series ICP-MS Operations		8-11 FL	
iCAP 6000 Series		22-25 FL	19-22 FL
IRIS Intrepid ICP Operations	24-27 IL		5-8 IL
QuantX EDXRF	3-6 WI		
XRF Operation		14-17 MI	
OE Operations	16-19 MI		4-7 MI

COURSE TITLE	April	May	June
<b>MOLECULAR SPECTROSCOPY</b> (WEST PALM BEACH, FL; MADISON, WI; SAN FRANCISCO, CA; LAS VEGAS, NV)			
OMNIC™ Software Essentials Operations	24-26 FL	22-24 FL	19-21 FL
OMNIC Software Plus Operations		8-11 WI	
FT-IR Sample Handling Operations	10-12 FL		
FT-IR Spectral Interpretation			12-15 WI
Fundamentals of FT-IR Analysis			4-8 WI
Fundamentals of FT-IR Microscopy Operations	23-27 WI		
Nicolet Antaris™ FT-NIR Analyzer Operations	10-12 IL		
Nicolet Centaurus™ Microscope Operations		15-17 FL	
Nicolet Continuum™ & Continuum XL Microscope Operations		8-11 WI	19-22 WI
Almega™ Raman Operations		8-10 IL	
FT Raman Spectroscopy Operations		1-3 WI	

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