

TechTIPS

Timely, Informative Productivity Solutions to Help You Work Smarter!

Mass Spectrometry

Molecular Spectroscopy

Elemental Analysis

Chromatography



15% Course Discount

Register today to receive **15% off** the standard price of our January Xcalibur Software Operations.

25% Course Discount

Register today to receive **25% off** the standard price of our January LCQ Operations, TSQ Quantum/Vantage Operations.

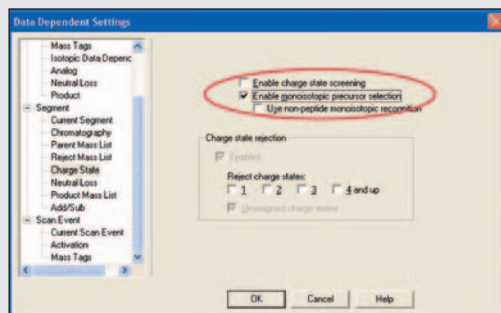
40% Course Discount

Register today to receive **40% off** the standard price of our January Proteome Discoverer 1.0 Operations and EnviroLab (ELF) Software Operations.

TechTIP (Thermo Scientific LTQ XL Orbitrap Biotech Operations): Combining MiPS and Dynamic Exclusion on the LTQ Orbitrap™

Method building and maximizing data quality

In complex sample analysis on the LTQ Orbitrap, it becomes imperative not to collect redundant tandem mass spectra in order to identify as many peptides as possible in samples having a large dynamic range. One of the key features to aid in this process is Dynamic Exclusion. This feature of data-dependent scanning creates a list of already fragmented ions, avoiding refragmentation of the peak. On high-resolution instruments like the LTQ Orbitrap the individual isotopes of a peptide can be resolved causing the ion trap to fragment each one individually even though their spectra will be the same (redundant information). The user can avoid this situation by clicking on Monoisotopic Precursor Selection as shown in the figure.



Learn more when you attend:

LTQ XL Biotech Operations

This course focuses on electrospray ionization (ESI) of proteins and peptides, tuning using nanospray, and Data Dependent acquisition. Additionally, the course provides in-depth discussion and hands-on learning of qualitative analysis using the latest version of the Thermo Scientific software programs, Xcalibur and BioWorks software. The course will also provide students with a detailed training manual, a CD containing data acquired during the course and additional course materials.

Topics include:

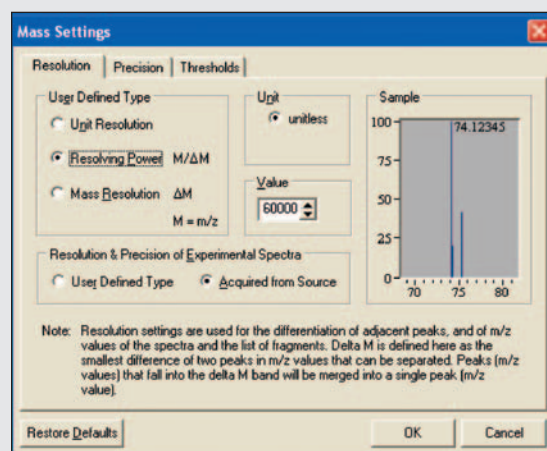
- Ion trap theory
- Tuning and calibration
- Hands-on APCI and ESI MS
- Instrument method development for LC/MS
- Data Dependent method design
- Post-translational modification methods
- Xcalibur software for qualitative methods
- BioWorks software training
- Basic LTQ maintenance

Prerequisite: Practical LC/MS for Beginners course or previous experience developing LC/MS methods.

TechTIP (Thermo Scientific Mass Frontier Software Operations) – Get Accurate Mass Data in Mass Frontier™

Changing resolution settings

When importing high-resolution accurate mass data from the LTQ Orbitrap or LTQ FT Ultra into Mass Frontier, the resolution settings must be changed in order to obtain the accurate mass information. Simply select Options > Mass Settings from the toolbar, select the Resolution tab, change Unit Resolution to Resolving Power and enter the resolving power at which your data was acquired. The accurate mass assignments in Mass Frontier give better spectrum and fragmentation pattern matching.



Learn more when you attend:

Mass Frontier Software Operations

This course will help students master the latest version of Thermo Scientific Mass Frontier. Detailed presentations and hands-on exercises are provided for on all Mass Frontier modules in order to ensure a sound understanding of all its processes. The students will become familiar with the subjects of database generation and manipulation and spectra interpretation, as well as compound classification with the use of statistics. By the end of the course, students will be able to apply all software applications for their own purposes.

Additionally, a short course on the interpretation of CID spectra will be included, allowing the users to update the Fragmentation Library module with new mechanisms.

Topics include:

- Database Manager
- Chromatogram processor
- Fragments and mechanisms
- Spectra classifier
- Interpretation of CID spectra (for use with fragmentation library)

TechTIP (Thermo Scientific Nicolet Almega XR Raman Spectroscopy Operations): Quick, Easy Steps to Align your Nicolet Almega™ System

Maintaining optimal alignment

Alignment for the Almega Raman system is made easy through enhanced software and hardware tools included with your system. To maintain optimal performance it is recommended to perform a system alignment on a daily basis. Many applications may require less frequent alignment, but the instrument should always be aligned at least once a week. With the following simple steps, the alignment can be accomplished in a matter of minutes. If your system has two lasers, you should perform the alignment for each laser.

Step 1: Open the Collect/Experiment Setup menu and select the laser that you would like to calibrate.

Step 2: Select the alignment tab in Experiment Setup.

Step 3: Place the alignment tool on the stage as shown below, rotate the nosepiece to select the “10x” objective and align the crosshairs to the pinhole on the alignment tool.

Step 4: Select the *Align Spectrograph to Pinhole* radio button which will provide a live display of the signal at the left side of the dialog box.

Step 5: Click the Auto Align button at the lower right of the display and the software will utilize the pinhole to align the spectrograph and laser to the pinhole.

By performing the above steps, you have ensured that the visual focus, laser focus, and light path through the instrument are all in alignment.



Learn more when you attend:

Nicolet Almega XR Raman Spectroscopy Operations

2.0 CEUs

This course is designed to help you get the most from your Thermo Scientific Nicolet Almega XR. The course will educate users on system configuration and software through lecture and hands-on training. In addition to providing students a sound understanding of Raman theory, the course also features instruction on proper experiment setup, alignment, and use of tools and software.

Upon completion, you will have a thorough understanding of:

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

Recommended: Students are encouraged to bring samples for analysis as the course covers post-collection data manipulation, sample preparation, and the use of system tools.

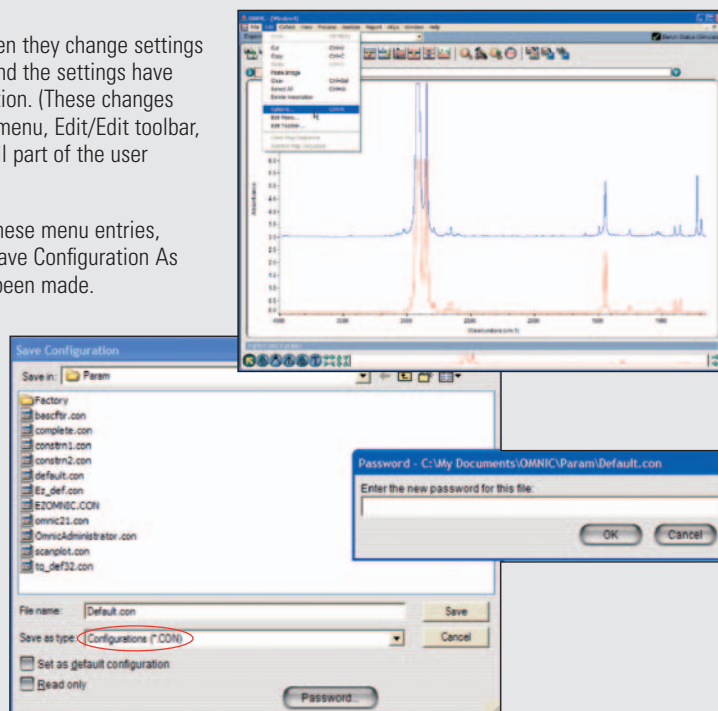
TechTIP (Thermo Scientific OMNIC Software Essentials/ Plus Operations: Changing Default Window Views

Safeguarding your settings

It can be frustrating for users when they change settings in OMNIC only to open it again and the settings have reverted to the original configuration. (These changes can be made in the Edit/Options menu, Edit/Edit toolbar, and the Edit/Edit menu and are all part of the user configuration settings.)

After making changes to any of these menu entries, it is necessary to go to the File/Save Configuration As entry to save changes that have been made.

During the save process, select the Set as default configuration box and save using a unique configuration name. It is also possible to password protect your configuration so that no one changes it.



Learn more when you attend:

Fundamentals of FT-IR Microscopy Operations

1.7 CEUs

This interactive FT-IR software course is designed for new users of FT-IR spectrometer systems and Thermo Scientific OMNIC operating software. Using desktop computers and sample data sets, this course will provide students with a basic understanding of infrared spectroscopy.

Topics include:

- Basic FT-IR theory, including how spectrometers work
- How to create Experiment files
- How to create individual user configurations
- Troubleshooting spectral results
- Performing basic post collection data manipulation
- Creating user reference libraries and optimizing library search results
- Use of Thermo Scientific Spectra software for sample analysis

An FT-IR instrument software training voucher may be used as full payment for this course.

TechTIP (Thermo Scientific XSERIES ICP-MS Operations): Analyzing the Same Isotope in Multiple Modes?

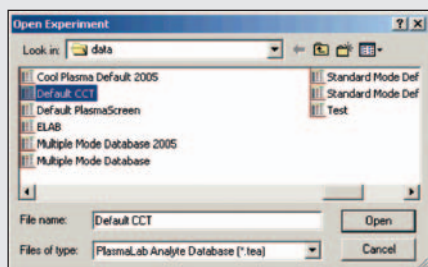
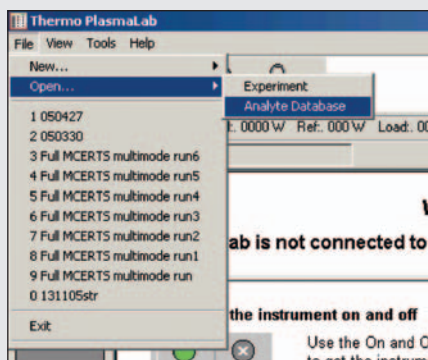
An easy workaround for this problem

For method development and internal standardization, it is often desirable to be able to analyze the same isotope of an element in more than one analysis mode, e.g. measurement of 75As in standard mode and in CCT mode for comparative purposes or measurement of 71Ga as an internal standard in standard mode, H2/He mode and NH3/He mode. Currently, Thermo Scientific PlasmaLab does not support this option when running in-sample mode switching. However, there is a workaround for this problem that is satisfactory as an interim measure.

(Note: In order to do this, you must have Microsoft Access on your computer.)

Instructions for adding new iterations of isotopes for alternative modes

- 1) In PlasmaLab, open the analyte database, e.g. *Default CCT (File/Open/Analyte Database)*

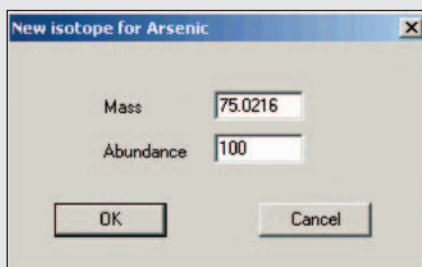


- 2) Select the analyte of interest, e.g. As, right mouse click and select the *Add isotope* option



- 3) Enter the mass + 0.1 amu into the *Mass* box, e.g. for As this would be 75.0216. This is important – if a mass within 0.1 amu of the actual mass is used then the data will not be reported for the newly created mass.

- 4) Enter the actual isotopic abundance in the *Abundance* box, e.g. 100% for 75As



- 5) Click *ok*

- 6) A new mass will be added

Select	Default	Symbol	Mass	Abundance	Equation
		75As	74.9216	100.0000	75Ar (75.1%), 16%
		75As	75.0216	100.0000	75Ar (75.1%), 16%

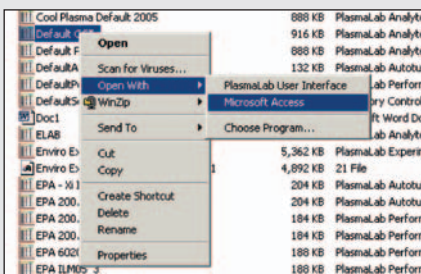
- 7) Repeat steps 2 – 6 for all the elements requiring multiple mode analysis.

- 8) Note: If a third mode is required, this can be done by adding another isotope at *actual mass – 0.1 amu*.

- 9) Save the Analyte Database with a new name and close it

- 10) Open Windows Explorer and browse to find the newly created Analyte Database: Normally found in *c:/programs/thermo elemental/plasmalab/data/*

- 11) Once you have located the file, select it and right mouse click. Select *Open With* and then select *Microsoft Access*

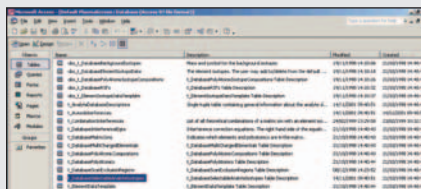


- 12) If Access prompts you to Convert or Open the Database, select the *Open* Option

- 13) If you are using a version of Access above 97, the program may display a message warning that you cannot make changes to the database. Click ok and ignore this message.

- 14) Double click on *t_DatabaseSelectableAnalytelsotopes*

- 15) Locate the added isotope(s) in the *DSAL_Symbol* column and correlate with the added mass in the *DSAL_Mass* column

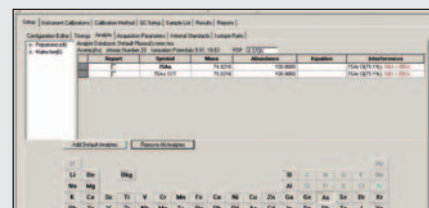


- 16) Re-label the isotopes as appropriate, e.g. for the arsenic mass at 75.0216, re-label as *75As_CCT*, for example.

Symbol	Mass	Abundance	Equation
75As	74.9216	100.0000	75Ar (75.1%), 16%
75As_CCT	75.0216	100.0000	75Ar (75.1%), 16%

- 17) Once re-labelling is complete, close the database without saving

- 18) When the database is re-opened in PlasmaLab (or when new experiments are created from it), the newly labelled isotopes will be selectable. Note that the actual settings used must still be selected in the acquisition parameters page.



Learn more when you attend:

XSERIES ICP-MS Operations

This course is designed for those who are new to the XSERIES 2 instrument, and will familiarize the operator with instrument features, routine operation and maintenance.

Topics include:

- Introduction to ICP-MS
- Principles of operation of ICP-MS
- Evaluation of different interface designs and the use of collision cell technology (CCT) to address specific
- System optimization and instrument calibration routines
- Data acquisition (using a variety of calibration techniques), QA/QC and interpretation
- Routine maintenance

Note: Depending on the availability of instrumentation and equipment, additional select topics may include: cold plasma analysis, isotope ratio analysis and the use of additional sample introduction equipment (i.e., laser ablation, chromatography, and desolvating and ultrasonic nebulizers).

25% Course Discount

Register today to receive **25% off** the standard price of our January XSERIES ICP-MS courses.



15% Course
Discount

Register today to
receive **15% off** the
standard price of our
January ARL OES
Operations courses.

TECHTIP (Thermo Scientific Atomic Absorption Operations): Cleaning Your Titanium Burner

Keeping your burner slot deposit-free

With the replacement of the older stainless steel burner with the new titanium burner, cleaning of the burner slot has become much easier.

With the advent of the new titanium burner, a cleaning tool has been included with the burner. This tool is used to remove deposits that might build up in the burner slot. The base of the burner assembly incorporates a holder where the cleaning tool is kept. Simply remove the tool and pass it through the burner slot.

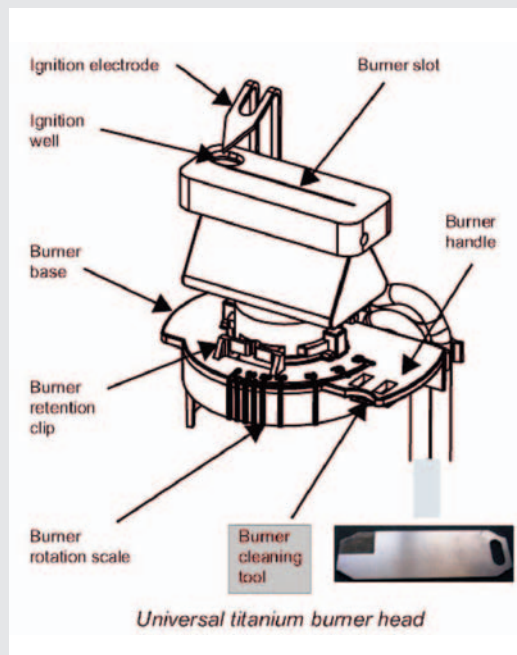
Below is a diagram of the titanium burner assembly. At the bottom-right you can see the cleaning tool. Remove the tool from its holder and slide it through the burner slot to remove extraneous material from the slot. The notch on the tool is used for that portion of the burner slot that narrows near the ignition well.



Stainless Burner



New Titanium Burner



Learn more when you attend:

Atomic Absorption Operations

This course covers all essential topics regarding flame/furnace optimization, methods development and efficient operation of the instrument. Both D2 and Zeeman background correction techniques will be explored.

Topics include:

- Atomic spectroscopy theory
- Solar atomic absorption software
- Instrument optimization
- Methods development
- Troubleshooting

Note: Flame and furnace AA users will have a four-day course. Flame ONLY users will attend the first two days of training at a cost of 50% of enrollment.

COURSE TITLE	January	February	March
CHROMATOGRAPHY AND MASS SPECTROMETRY <i>(West Palm Beach, FL; San Jose, CA; Philadelphia, PA)</i>			
LCQ™ Operations	6-9 FL		2-5 FL
LCQ Biotech Operations			9-12 FL
LTO XL™ Operations		23-26 FL	
LTO XL Biotech Operations		2-5 FL	16-19 FL
LTO XL w/ETD Operations			2-5 FL
LTO XL OrbiTrap Operations		9-12 FL	9-12 FL
LTO XL OrbiTrap Biotech Operations	19-22 FL		23-26 FL
LTO XL FT/LTO FT Ultra Operations	<i>Onsite Only, Call Training Institute To Schedule</i>		
LTO XL FT/LTO FT Ultra Biotech Operations	<i>Onsite Only, Call Training Institute To Schedule</i>		
TSQ™ Quantum/Vantage Operations	26-29 FL		23-26 FL
TSQ Quantum/Vantage QuickQuan™ Software Operations		3-5 FL	
TSQ Quantum/Vantage Accurate Mass Operations	<i>Onsite Only, Call Training Institute To Schedule</i>		
MSQ Plus™ (Surveyor) Operations		3-5 FL	
Polaris Q/iTQ (with TRACE GC Ultra) Operations		2-5 FL	
TSQ Quantum/Vantage GC Operations			17-20 NJ
DSQ/DSQ II™ (with TRACE GC Ultra) Operations		9-12 FL	
ToxLab™ Software Operations			
Basic HPLC Training Operations		24-25 FL	
HPLC Method Development for LC/MS Operations			17-19 FL
Proteome Discoverer 1.0 Operations	12-13 PA		
Xcalibur™ Software Operations	14-15 PA		
ChromQuest™ Software Module – GC			31-APR 2 FL
ChromQuest Software Module – HPLC Systems			
Accela™ UHPLC Training			10-11 FL
MetWorks™ Software Operations			
Mass Frontier™ Software Operations			
EI/CI Interpretation Module			
Basic Gas Chromatography			
Gas Chromatography Method Development			
EnviroLab™ (ELF) Software Operations	12-15 FL		

COURSE TITLE	January	February	March
MICROANALYSIS (MADISON, WI)			
NSS/NS7 Operations			10-13 WI

COURSE TITLE	January	February	March
ELEMENTAL ANALYSIS (WEST PALM BEACH, FL; SAN JOSE, CA)			
XSERIES ICP-MS Operations	13-16 CA		31-APR 3 FL
iCAP 6000 Series Operations	20-23 FL		17-20 FL
Atomic Absorption Operations			
IRIS Intrepid ICP Operations			
ARL QUANT'X EDXRF Operations			31-APR 3 FL
ARL XRF/XRD Operations		24-27 FL	
ARL OES Operations	6-9 FL	10-13 FL	

COURSE TITLE	January	February	March
MOLECULAR SPECTROSCOPY COURSES <i>(WEST PALM BEACH, FL; MADISON, WI; SAN JOSE, CA; PHILADELPHIA, PA)</i>			
OMNIC™ Software Essentials Operations	27-29 PA		10-12 FL
OMNIC Software Plus Operations		3-6 PA	
Spectral Interpretation Applications		23-27 WI	
Fundamentals of FT-IR Analysis Operations			9-13 FL
Fundamentals of FT-IR Microscopy Operations		9-13 WI	
Nicolet Antaris™ FT-NIR Analyzer Operations		3-5 FL	
Nicolet Centaurus™ Microscope Operations			3-5 WI
Nicolet Continuum™ Microscope Operations		9-13 FL	23-27 WI
Quantitative TQ Analyst Software Operations			24-26 FL
Nicolet Almega™ XR Raman Spectroscopy Operations	20-22 CA		
FT-Raman Spectroscopy Operations	13-15 FL		
Nicolet™ iN™ 10/iN10 MX Microscope Operations			
DXR Raman Operations	<i>Onsite Only, Call Training Institute To Schedule</i>		
FT-IR Gas Analysis Software Operations	<i>Onsite Only, Call Training Institute To Schedule</i>		
Nicolet ECO FT-IR Metrology Tool Applications	<i>Onsite Only, Call Training Institute To Schedule</i>		

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>Fourier Transform Infrared Spectroscopy Theory

>Atomic Absorption Spectroscopy Theory

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For a complete course schedule, visit www.thermo.com/education

Early Bird Special

Register before Dec. 31, 2008 for any training course in 2009 and receive **10% off** the standard price of the course.

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