

## Why Take These Courses?

- Learn to improve your analyses
- Real world, practical, hands-on, applications-oriented training
- Easy to understand, informal presentation
- Instructor is an experienced spectroscopist and trainer

## Your Instructor



Dr. Brian C. Smith is founder & principal of Spectros Associates. He has been a spectroscopist for over 25 years and was employed by Bell Labs and Digilab. He is an experienced trainer; thousands of people have benefited from his instruction since 1992. Dr. Smith is the author of three popular books on spectroscopy: *Fundamentals of FTIR* and *Infrared Spectral Interpretation*, published by CRC Press, and *Quantitative Spectroscopy: Theory and Practice*, published by Academic Press. Dr. Smith earned his Ph.D. in Chemistry from Dartmouth College and graduated with highest honors from Rochester Institute of Technology with a B.S. in Chemistry.

## On-Site Training

All Spectros Associates courses can be taught at your site. We will customize on-site courses for your experience level, sample type, and instrument. Contact us today for an on-site training quote!

## Course Locations

<b>Atlanta</b> <b>Hampton Inn</b> 3400 Northlake Pkwy. Atlanta, GA 30345 Tel: 770-493-1966	<b>Houston</b> <b>Hampton Inn</b> 1715 Old Spanish Trail Houston, TX 77054 Tel: 713-797-0040	<b>Philadelphia - Hampton Inn</b> 1329 Bristol Pike, Bensalem, PA 19020, 215-245-5222 <b>Minneapolis - Hampton Inn</b> 7745 Lyndale Ave. So., Richfield, MN 55423, 612-861-1000 <b>Cleveland - Hampton Inn</b> 10305 Cascade Crossing, Brooklyn, OH 44144, 216-929-8400
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## Books to Enhance Your Learning

*Fundamentals of Fourier Transform Infrared Spectroscopy*—A 200-page hardcover book introducing important FTIR concepts including how an FTIR works, how to analyze mixtures, how to prepare samples properly, and quantitative analysis. Published by CRC Press and available from Spectros Associates.

*Infrared Spectral Interpretation: A Systematic Approach*—A 265-page hardcover volume covering how to use IR spectra to perform identifications and identify unknowns. Learn what determines the peak positions, heights, and widths in a spectrum. Then, a systematic 10-step method for properly interpreting spectra is presented. The spectra of economically important molecules including hydrocarbons, alcohols, ethers, carbonyl groups, amides, amines, polymers, and inorganics are analyzed using this 10-step method. Each chapter includes an introduction to the structures and nomenclature for the molecules covered, many example spectra, and unknown spectra that can be interpreted for practice. Published by CRC Press and available from Spectros Associates.

*Quantitative Spectroscopy: Theory and Practice*—This 200-page hard cover book shows you how to use spectra to measure the concentration of molecules in samples. Relevant theory is presented to help you understand the important experimental variables that affect calibration quality. Then, how to avoid common experimental problems and how to spot bad data is discussed. An understandable presentation of the mathematical algorithms used to generate calibrations is made with an emphasis on the advantages and disadvantages of each. A process is presented that users can follow to achieve robust and accurate calibrations. Published by Academic Press and available from Spectros Associates.

All books are written by Dr. Brian C. Smith of Spectros Associates. Each book costs \$150, which includes all shipping, handling, and taxes. To order call 508-845-9712, e-mail [info@spectros1.com](mailto:info@spectros1.com), or go to [www.spectros1.com](http://www.spectros1.com).

**WWW.SPECTROS1.COM**

- Register for courses
- Buy Books
- Full course outlines
- Helpful hints on improving your FTIR analyses
- Info on services such as consulting, expert witness work, & Array Basic™ programming

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*Infrared Enlightenment—To solve your materials analysis problems*

**Spectros Associates**

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**FTIR Short Courses**  
**near you soon!**  
*Details Inside ...*

# Infrared Enlightenment . . .

## FTIR SHORT COURSES

- ✓ Fundamentals of FTIR
- ✓ Hands-On IR Sample Prep Workshop
- ✓ IR Spectral Interpretation I
- ✓ IR Spectral Interpretation II
- ✓ IR Spectral Interpretation III

**Atlanta**

March 5 - 9, 2007

**Houston**

April 16 - 20, 2007

**Or we can come to you!**



<b>Philadelphia, PA</b>	<b>June 4 - 8, 2007</b>
<b>Minneapolis, MN</b>	<b>Sept. 24 - 28, 2007</b>
<b>Cleveland, OH</b>	<b>Oct. 29 - Nov. 2, 2007</b>

Presented by

**Spectros Associates**

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**Spectros Associates**

# Fundamentals of FTIR

## Overview

A great course to introduce you to FTIR. You will learn to make your analyses better, faster, and cheaper. Learn how an FTIR works, how to analyze mixtures using spectral subtraction and library searching, and how to use an infrared microscope. Your new-found understanding will give you greater confidence when using your FTIR.

## Learn

- The advantages and limitations of FTIR
- How an FTIR works
- Parameter settings that give the best results
- Quality Assurance tests for your FTIR
- How to use subtractions and library searches to analyze mixture spectra
- How an IR microscope works—and how it solves a myriad of industrial problems
- See demonstrations with a live FTIR
- Includes a complimentary set of Dr. Smith's detailed PowerPoint® slides
- Buy Dr. Smith's *Fundamentals of FTIR* textbook, an excellent reference for your lab.

**"This course was exactly what I needed...Certainly a 10!"**

J. Ayotte  
Ticona Corporation

# Hands-On IR Sample Prep Workshop

## Overview

A hands-on course where you will prepare solid, liquid, and polymer samples for infrared analysis. Course emphasis is on picking the right preparation techniques for your samples to maximize spectral quality and minimize sample preparation time. Sample preparation is half the battle in obtaining good results—*learn to win that battle!*

## Learn

- See for yourself how to prepare samples properly in our hands-on workshop.
- Choose the best sampling technique for your sample every time
- That Attenuated Total Reflectance (ATR) can practically eliminate sample preparation for polymers, gels, pastes, liquids, and even powders
- How Diffuse Reflectance (DRIFTS) makes analysis of solids and powders fast & easy
- See how to make quality KBr pellets
- Includes a complimentary set of Dr. Smith's detailed PowerPoint® slides
- Buy Dr. Smith's *Fundamentals of FTIR* textbook, an excellent reference for your lab

**"Best course I have ever attended"**

F. Opawale, Ph.D.  
Nobex Corp.

# IR Spectral Interpretation I

## Overview

An ideal course for the new or occasional infrared interpreter. This course explains how to integrate peak position, height, and width information to systematically attack the problems of unknown and mixture spectra. The spectra of economically important molecules are explained using many examples. Students practice interpreting many unknown spectra in class with the instructor's guidance.

## Learn

- A systematic, 10-step approach to interpreting IR spectra successfully
- 4 ways to make interpreting mixture spectra easier
- The right way to perform identities & spectral comparisons
- The diagnostic infrared bands of economically important molecules such as hydrocarbons, alcohols, ketones, and esters
- Special discussion of polymer spectra
- Practice interpreting spectra in class with the instructor's guidance
- Includes a complimentary set of Dr. Smith's detailed PowerPoint® slides
- Buy Dr. Smith's *IR Spectral Interpretation* textbook, an excellent reference for your lab

**"Your courses ... have given me greater confidence in my use of FTIR"**

N. Harmon  
WIKA Instruments

# IR Spectral Interpretation II

## Overview

A more detailed look at infrared interpretation for those who routinely need to identify unknown molecules from their spectra. Learn how molecules absorb infrared light so you can fully understand all the features in a spectrum. The spectra of economically important but spectrally complex molecules are explained using many examples. Students practice interpreting many unknown spectra in class with the instructor's guidance.

## Learn

- Fully understand all the features in a spectrum
- Unravel the mysteries of alkene and ether spectra
- Understand the spectra of nitrogen containing molecules including amides & amines
- Make sense out of complex carbonyl spectra
- Practice interpreting spectra in class with the instructor's guidance
- Includes a complimentary set of Dr. Smith's detailed PowerPoint® slides
- Buy Dr. Smith's *IR Spectral Interpretation* textbook, an excellent reference for your lab

**"Dr. Smith did a fabulous job."**

K. Crawford  
Martek Biosciences

# IR Spectral Interpretation III

## Overview

Learn the right way to interpret complex spectra. We begin with commonly found cyclic structures such as cycloalkanes, polycyclic aromatics and heterocyclic rings. The functional group survey continues with the spectra of carbohydrates, inorganics, and amine salts. The course concludes with a thorough explanation of interpretation aids including library searching and spectral subtraction.

## Learn

- That much can be learned from complex spectra with the proper approach
- How library searching and spectral subtraction make interpreting spectra easier
- Understand the spectra of cycloalkanes, heterocycles, and carbohydrates
- Make sense out of highly substituted aromatic and polycyclic aromatic spectra
- Special discussion of inorganic spectra
- Practice interpreting spectra in class with the instructor's guidance
- Includes a complimentary set of Dr. Smith's detailed PowerPoint® slides
- Buy Dr. Smith's *IR Spectral Interpretation* textbook, an excellent reference for your lab

**"Dr. Smith was extremely knowledgeable and able to relate to every student's industry and application."**

M. Mirabal  
Florida

# Registration Form

Or register online for all courses at [www.Spectros1.com](http://www.Spectros1.com)  
Enrollment is limited...Register Today!

Name _____	VIP Code from Label _____
Organization _____	
Address _____	
City _____	State _____ Zip Code _____
Telephone _____	Fax _____
E-mail _____	

## Atlanta

- Mar. 5 Fundamentals of FTIR
- Mar. 6 Hands-On IR Sample Prep
- Mar. 7 IR Spectral Interpretation I
- Mar. 8 IR Spectral Interpretation II
- Mar. 9 IR Spectral Interpretation III

## Reference Texts

- Hard-cover books written by Dr. Brian C. Smith will enhance your learning. Delivered at course.
- \_\_\_\_\_ *Fundamentals of FTIR*, 200 pgs.
- \_\_\_\_\_ *IR Spectral Interp.*, 260 pgs.
- \_\_\_\_\_ *Quant. Spectroscopy*, 200 pgs.

## Houston

- Apr. 16 Fundamentals of FTIR
- Apr. 17 Hands-On IR Sample Prep
- Apr. 18 IR Spectral Interpretation I
- Apr. 19 IR Spectral Interpretation II
- Apr. 20 IR Spectral Interpretation III

**Tuition:** Includes breakfast, lunch, refreshment breaks, and all training materials. Circle the number of days & add books for Grand Total.

One Course	\$ 725.00
Two Courses	\$ 1435.50
Three Courses	\$ 2131.50
Four Courses	\$ 2813.00
All five Courses	\$ 3480.00
_____ Books at \$150.00 each	\$ _____

Registrants who can't attend a course for any reason will receive full credit towards a future course.

**Grand Total** \$ \_\_\_\_\_