

# History, Theory, and Instrumentation of Near-Infrared Spectroscopy

Location: Your Computer Offering # 0908-701 Priority Code: 520

This course presented by CfPA in conjunction with



and

**PFQ**

**FOOD  
Quality**

## WHO SHOULD ATTEND

The course will benefit personnel in Pharmaceuticals, Petrochemical, Food & Agriculture, Textiles and Biotechnology Industries, as well as Medical and Clinical practitioners. All facets of these industries will find this course useful, especially those in Basic Research, R&D, Production, QA and QC. Attendees who will benefit from this training are:

- Analytical and Organic Chemists
- Formulations Scientists
- Regulatory Affairs Personnel
- Process Engineers
- Quality Control and Quality Assurance Professionals

## LEARNING OBJECTIVES

Upon completion of this training, you will be able to:

- Explain the theoretical basis of NIR analyses
- Describe how to choose the correct instrumentation and software for their particular projects
- Demonstrate the different strengths of each type of NIR instrument for particular applications

## COURSE DESCRIPTION

This 90-minute **accredited** training course is intended as an introduction to Near-Infrared. Since the topic is not covered in colleges, many first-time users need to find information piecemeal. The topics in this course cover the basic theory and hardware used in NIR.

With an understanding of what NIR is and is not and what each type of instrument can and may not be able to do, the analyst/engineer/formulator can make intelligent decisions as to whose equipment to investigate further.

After attending this course, attendees will have a better understanding of the range of choices available and the vast number of analyses that may be performed by NIR.

### Module 1: Historical Facets

- Brief history of NIR since 1800
- Applications throughout history
- Development of modern instrument

### Module 2: Theory and its Implications

- Basis of NIR absorption
- Moieties that absorb
- Hydrogen bonding
- Software needed for NIR

### Module 3: Hardware and Potential Applications

- Laboratory equipment
  - Grating versus interferometer
  - Sampling techniques and devices,
  - Transmission versus reflectance
  - Physical vs. chemical information
- Process equipment
  - For liquids: Monitors versus analyzers, Aqueous and non-aqueous, Reaction monitoring
  - For solids: Powders vs. solid samples, Sampling speed, Information needed

For more information see reverse side ⇨



**CfPA**

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## COURSE DIRECTOR

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**Emil W. Ciurczak**, Consultant

Emil W. Ciurczak has been working with NIR for over 25 years. He is the co-editor of the "Handbook of Near-Infrared Analysis" (all 3 eds.) and co-author of "Pharmaceutical and Medical Applications of NIR Spectroscopy." He has over 40 refereed publications and over 200 presented papers on the subject. He is also Contributing Editor to /Pharmaceutical Manufacturing/ magazine.

Mr. Ciurczak has been teaching NIR for various organizations (including CfPA) since 1988 in the US and Europe. He has almost 40 years of pharmaceutical experience and has taught various chemistry courses at the college level since 1979. He holds nine patents for NIR hardware and software.

He won the 2004 EAS "Achievements in NIR" award was on the FDA's subcommittee on PAT in 2002. Mr. Ciurczak has worked for Ciba-Geigy, Merck, Sandoz, and Purdue Pharma in addition to working with several NIR instrument manufacturers in his career.

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## TUITION AND REGISTRATION

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**TUITION\*** – **Single Rate: U.S.\$295.00 per person**    **Group Rate: U.S.\$245.00 per person\*\***

Register at [www.cfpa.com](http://www.cfpa.com). Enter **Course Offering #0908-701** into **Quick Jump**. To register use **Priority Code: 520**.

For Questions and Information call Customer Service at 732-613-4500.

**Please Note:** Multiple participants are not authorized to share access provided to a single registrant, a single dedicated seat license must be purchased for each individual. CfPA reserves the right to cancel access or collect the group rate payment if this requirement has been violated. Only registered participants will receive accreditation.

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## ACCREDITATIONS

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The Center for Professional Advancement has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 8405 Greensboro Drive, Suite 800, McLean, VA 22102. In obtaining this approval, The Center for Professional Advancement has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally. As a result of their Authorized Provider membership status, The Center for Professional Advancement is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

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## WHO WE ARE

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The Center for Professional Advancement (CfPA) is the largest accredited technical training organization in the world with a curriculum of approximately three hundred and fifty short courses in 18 industries including Pharmaceutical, Biotechnology, Medical Device, Chemical, Cosmetics, Food and more.

Since our founding in 1967, we have successfully trained nearly a half million people worldwide in topics ranging from basic and introductory concepts to new advances and cutting-edge technology, and current U.S. and European regulations. CfPA courses are offered in a variety of formats – Public offering, Client Site and Online – to fit you or your company's training needs.

For more information visit our website at [www.cfpa.com](http://www.cfpa.com)

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## COURSES OF INTEREST

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- **Analytical Methods Validation for FDA Compliance**  
course ID# 1887
- **Laboratory Control System**  
course ID# 2047
- **Near Infrared Spectroscopy**  
course ID# 1583
- **PAT Online Process Analysis**  
course ID# 2030
- **Real World Approaches to PAT and QbD Implementation**  
course ID# 2085
- **Role of PAT and QbD in Biologic Drug Production**  
course ID# 2163

### ABOUT ON-DEMAND:

Our pre-recorded on-line training courses are available for viewing at your convenience at your computer. Register for a CfPA on-demand course, your registration will be processed within two (2) business days, after payment and registration are complete you will receive an email from [olinetraining@cfpa.com](mailto:olinetraining@cfpa.com) with your password to access the on-demand course. You will have two (2) business days to view the course. You MUST complete all polls and the course evaluation to receive your accreditation certificate for this course.

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## TERMS AND CONDITIONS

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**\*Payment:** Tuition payable in US funds net of all charges. Payment is due at time of registration in the form of a credit card. Please contact CfPA's Customer Service for other payment options.

**\*\*Group Rate:** The Group Rate is for two or more enrollments, up to five registering from the same company at the same time. For groups of six or more, please contact Customer Service for group pricing.

**Cancellations/No Show: "Live"** - Registrants may cancel up to two working days prior to the course start date and will receive a letter of credit to be used towards a future course up to one year from date of issuance. No credit will be issued for no-shows and/or cancellations less than two working days prior to the course. : **"On-Demand"** - No refund or credit will be issued for no-shows and/or cancellations of on-demand training courses. CfPA is not responsible for any outside related costs incurred by registrant's cancellation.