

THE 2007 PRO-LITE LIGHT MEASUREMENT SEMINAR

Light Measurement and the Application of Integrating Spheres & CCD Spectrometers

Venue: Photonics Cluster
(UK) Birmingham

Thursday 1st November 2007
08:30-17:00

Fee: £45 (plus VAT)

Supported by:



ASTON SCIENCE PARK

In association with:



PRO-LITE
TECHNOLOGY

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The Integrating Sphere – a Versatile Solution in Light Measurements

The integrating sphere is a versatile tool in optical radiation measurements. This seminar will introduce the basics of light measurements and how integrating spheres can simplify complex optical testing. Applications discussed include the measurement of light sources (lamps, LEDs, OLEDs, lasers, displays), testing the optical properties of materials and the calibration of electronic imaging, detector array and remote sensing systems.

The CCD Spectrometer – a Versatile Solution in Spectral Analysis

The CCD spectrometer is one of the most widely used tools for measuring and interpreting the interaction of light with matter. The seminar will introduce the basics of CCD spectrometry in applications as diverse as medical and biological research, environmental monitoring, life sciences, education and entertainment lighting and display.

What You Will Learn

- ▶ The basic science of light measurements and the optical properties of materials.
- ▶ How to define & express the performance of light sources.
- ▶ The theory of integrating spheres and diffuse reflectance materials.
- ▶ How to specify and use an integrating sphere for measuring light sources, measuring reflectance & transmittance and testing electronic imaging & remote sensing equipment.
- ▶ The theory of CCD spectrometers.
- ▶ How to specify and use a CCD spectrometer in reflectance, transmittance & absorption measurements, Raman spectroscopy, LIBS, emitted and reflected colour measurements and in fluorescence spectroscopy.

Who Should Attend?

The seminar is intended for scientists and engineers working in the field of light source measurements and testing the optical properties of materials. The event will also be of interest to those involved with calibrating remote sensing systems, or evaluating the performance of electronic imaging equipment and detector arrays such as CCDs and CMOS sensors. Spectroscopic techniques reviewed include reflectance, transmittance and absorption measurements, UV-VIS-NIR spectroscopy, spectroradiometry, Raman spectroscopy, LIBS, colour measurements and fluorescence spectroscopy.

Practical Demonstrations

Practical demonstrations will be provided of integrating spheres and CCD spectrometers in a variety of applications.

See overleaf for a detailed programme

To Register or For Further Information

Pro-Lite greatly appreciates the support of the Photonics Cluster (UK) and Aston Science Park who are administering this seminar. To obtain a registration form, please contact Tahreen Kutub at Aston Science Park on +44 (0) 121 250 3505 or email tahreenk@astonsciencepark.co.uk. Alternatively, you can register online at www.photonicscluster-uk.org or www.astonsciencepark.co.uk.

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Programme

08:30 – 09:00	Registration		
09:00 – 10:30	Light Measurement	<ul style="list-style-type: none"> ▶ Radiometry, photometry, colorimetry & spectroradiometry ▶ Optical properties of materials (reflectance, transmittance & absorbance) 	Robert Yeo <i>Pro-Lite</i>
10:30 – 11:00	Break (<i>refreshments will be provided</i>)		
11:00 – 12:30	Integrating Spheres	<ul style="list-style-type: none"> ▶ Integrating sphere theory <ul style="list-style-type: none"> ▶ Diffuse reflectance materials & coatings ▶ Integrating sphere design considerations ▶ Integrating sphere system configurations ▶ Integrating sphere applications <ul style="list-style-type: none"> ▶ Measuring light sources ▶ Calibrating remote sensing and electronic imaging equipment ▶ Testing the optical properties of materials 	Robert Yeo <i>Pro-Lite</i>
12:30 – 13:30	Break (lunch will be provided)		
13:30 – 15:00	CCD Spectroscopy	<ul style="list-style-type: none"> ▶ Spectrometer operating principles <ul style="list-style-type: none"> ▶ Key performance features and design considerations: wavelength range; resolution; sensitivity; stray light; second order diffraction ▶ Calibration principles and methods ▶ Spectroscopy applications & example configurations <ul style="list-style-type: none"> ▶ Absorbance, transmittance, reflectance & fluorescence measurements ▶ Spectroradiometry & spectrophotometry ▶ Emissive & reflective colour measurements ▶ LIBS, Raman & sensors 	Nick Barnett <i>Ocean Optics</i>
15:00 – 15:30	Break (<i>refreshments will be provided</i>)		
15:30 – 17:00	Practical Demonstrations	<ul style="list-style-type: none"> ▶ Reflectance, transmittance & absorption measurements ▶ Emitted & reflected colour measurements ▶ LED measurement ▶ Laser power measurement ▶ CCD camera calibration 	

About the Organisers

Pro-Lite serves as a distributor for manufacturers of equipment used in light measurement and for testing the optical properties of materials, including Labsphere and Ocean Optics. Labsphere, Inc has been setting the standard in light measurement, diffuse reflectance materials and integrating sphere technology since 1979. Ocean Optics, Inc is recognised as the inventor of miniature fibre optic spectroscopy. 2007 sees Labsphere join Ocean Optics in the Photonics Division of Halma plc, a UK-based multinational corporation with leading technologies and products which generate, measure and condition light and analyse the interaction of light with substances.