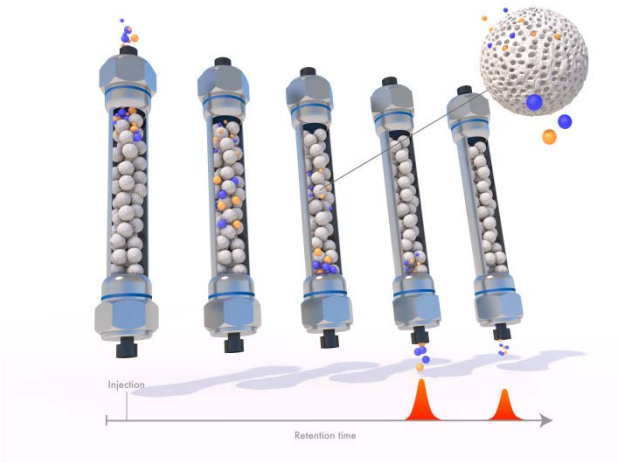
Handson-Training Course
Viscosity and Light Scattering

Successful work with molar mass sensitive detectors

Course Aim

This seminar covers all aspects for working with advanced detection methods and instruments for the determination of molar masses, sizes, and structures of macromolecules and biopolymers in solution. Lectures providing the theoretical background on (multi angle) light scattering and viscometry will be followed by hands-on training sessions on practical aspects and data processing. Tutored discussions in small workgroups and a trouble shooting session ensure that all aspects of molar mass sensitive detection are trained efficiently. Each group has its own tutor, an experienced polymer chemist, to discuss also special applications and questions.



Who should attend?

- All scientists working with techniques to determine the molar mass and the size of polymers in solution.
- Scientists interested in adding molar mass sensitive detection to their equipment.
- Users of light scattering and viscometry detectors (triple detectors) independent on the brand.

How you will benefit!

Attendees

- will be able to select the best and most precise method for an application task
- acquire the theoretical background to perform accurate and precise measurements and analysis
- will understand how to set up, optimize and troubleshoot instruments
- have the skills to recognize good data and result quality

Program

Day 1

09.00 **Welcome and General Information**

09.15 **Introduction to advanced polymer analysis**

- understanding molar mass averages and molar mass distributions
- multiple distributions in macromolecules
- methods for polymer characterization
- GPC/SEC fundamentals and detector characteristics
- light scattering and viscometry applications

10.45 **Coffee break**

11.00 **Molar mass and size determination**

- theoretical background for light scattering and viscometry data analysis
- off-line light scattering and viscometry detection
- off-line dn/dc determination
- advantages of on-line light scattering and viscometry detection
- coupling GPC/SEC equipment with advanced detection

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PSS Polymer Standards Service GmbH
In der Dalheimer Wiese 5
55120 Mainz | Germany

Phone +49 6131 96239-0
Fax +49 6131 96239-11
E-Mail info@pss-polymer.com
Web www.pss-polymer.com

Polymer Standards Service-USA, Inc.
160 Old Farm Rd, Suite A
Amherst | MA 01002 | USA

Phone +1 413 835-0265
Fax +1 413 835-0354
E-Mail pssusa@pss-polymer.com
Web www.pss-polymer.com

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13.00 **Lunch**

14.00 **Practical Session, Part 1**
- off-line light scattering and data analysis with Zimm plots, analysis of 2 samples
- setup of a GPC/SEC instrument with advanced detection, sample preparation for universal calibration and instrument setup and qualification (samples should be measured over night and processed the next day)
- off-line dn/dc determination

with Coffee break

18.00 **End of Practical Session, Part 1**

18.30 **Guided city tour (optional)**

20.00 **Dinner**

Day 2

09.00 **Qualified analysis of light scattering and viscometry data, Part 1**
- determination of the required parameters
- methods for the determination of slice concentration
- WinGPC evaluation options and result presentation for light scattering and viscometry

10.30 **Coffee break**

10.45 **Qualified analysis of light scattering and viscometry data, Part 2**
- precision of results and error propagation
- data consistency check and trouble shooting

12.15 **PSS WinGPC UniChrom - Detector setup and universal calibration**

12.45 **Lunch**

14.00 **Practical Session, Part 2**
- determination of the parameters for a proper instrument setup
- evaluation of the unknown samples
- discussion of the results and comparison of the methods

with Coffee break

17.00 **Summary, Questions and answers**
- Quiz with questions dealing with the seminar topics
- Round table discussion for applications and additional results

18.00 **End of Course and Farewell**

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Phone +1 413 835-0265
Fax +1 413 835-0354
E-Mail pssusa@pss-polymer.com
Web www.pss-polymer.com

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Registration and organization
PSS Polymer Standards Service GmbH - Training Academy
POB 3368, 55023 Mainz, Gemany
Phone: 0049- 6131-96239-30; Fax: 0049- 6131-96239-11
info@pss-polymer.com
https://pss-polymer.com/training-events/event-list.html

How does it work?

- After receiving your registration, we will send you the registration confirmation.
- We will contact you to get to know you and to identify your course goals.

Please note:
• All contents of the training slides are protected by copyright. If required, we will be happy to provide additional material for personal use. Please do not hesitate to contact us.

Participation fee EURO 1985,- ; for universities and institutes: EURO 1635,00
Includes participation (lectures and practical session), training documents and technical setup.

Cancellation policy
We ask for your understanding that if you cancel up to 2 weeks before the start of the course, a cancellation fee of 50% of the participation fee will be due. If you cancel at a later date, the participation fee can no longer be reimbursed, but a substitute participant can be provided.

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Web www.pss-polymer.com