

Multi Angle

Fall 2015

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LSU Dates



The acclaimed Light Scattering University (LSU) course, held in Santa Barbara, CA on the American Riviera, is guaranteed to demystify light scattering, work you hard but feed you well, and explain how to get the most from your Wyatt Technology instruments. [Enroll now!](#)

The next available US classes begin Oct. 27, Nov. 17, and Dec. 8.

Dyna-LSU classes begin Oct 29 Nov. 19, and Dec. 10.

[Check the full US schedule.](#)

[Check the full Germany schedule](#)

Regional User Meetings

Want a Protein/Biotech or Nanoparticle/Polymer meeting to happen in your area? Let us know!

Contact programs@wyatt.com

Light Scattering in the Nano World: ILSC 2015 Nov. 3 - 4, 2015

Submit your posters now! Second call for posters

Poster presentations are being accepted and are encouraged at this year's International Light Scattering Colloquium (ILSC). Each poster submitted will receive \$100 off the ILSC registration fee for the person presenting.

In addition to applications of light scattering in the life sciences, chemistry and biotechnology, ILSC 2015 will feature a special symposium entitled "*Light Scattering in the Nano World*" devoted to the characterization of engineered and environmental nanoparticles.

Full program now available!
Visit www.wyatt.com/ILSC.

The 2015 ILSC offers these additional satellite events:

Short Courses | Nov. 2, 2015

**Introductory & advanced courses:
MALS, DLS and more**

Would you like an introductory course on basic light scattering, a refresher on ASTRA 6 or an introduction to advanced techniques such as CG-MALS? Our series of half-day courses are not only a great way to prepare for ILSC, but also a good excuse for traveling to Santa Barbara in November! [View the schedule and course details.](#)

Focus Meeting | Nov. 5, 2015

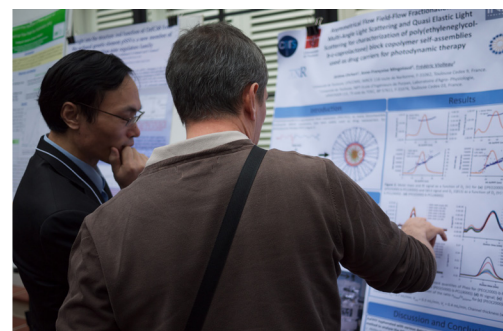
Method development for light scattering applications in biotherapeutic formulation

A one day focus meeting will address practical issues encountered in light scattering applications to biologic and small-molecule therapeutic formulation. Guest speakers from industry as well as Wyatt scientists will discuss how they meet these challenges. [View details.](#)

Light Scattering University | Oct. 27 - 30, 2015

To paraphrase the advice given by one of our customers on best practices in light scattering: Rule #1 – attend Light Scattering University! Our renowned MALS and DLS training courses, LSU and DynaLSU, will be held the week before ILSC in order to accommodate those who would like to attend both events.

[Register Here for ILSC](#)



WHAT'S NEW @WYATT

Upcoming Seminars

» **2015 AAPS**

October 26, 2015 | 10:00AM | Orlando, FL

Essential characterization from peptides to nanoparticles: High-throughput sizing and formulation by dynamic light scattering

Dr. John Champagne, Northeast Regional Manager & Senior Applications Scientist

» **2015 PacificChem**

December 19, 2015 | 11:10AM | Honolulu, HI

Preparation, Measurement, and Fractionation of Monodisperse Single Wall Carbon Nanotubes

Dr. Philip Wyatt, Chief Executive Officer

Webinars

Upcoming Live Webinars

» **November 10, 2015**

8:00AM PDT | 11:00AM EDT

Speaker: Dr. Michelle Chen, Director of Analytical Services

Small, but Bright: μ SEC-MALS Adds Light Scattering to UHP-SEC for Absolute Molecular Weight and Size

» **November 18, 2015**

8:00AM PDT | 11:00AM EDT

Speaker: Dr. Daniel Some, Director of Marketing and Principal Scientist

Drug Delivery Nanoparticles, Illuminated: The Light Scattering Toolkit

» **December 16, 2015**

8:00AM | 11:00AM EDT

Speaker: Dr. Sigrid Kuebler, Director of Customer Service

Light Scattering Techniques for Protein, Polymer, and Nanoparticle Characterization – Part 1: Fundamentals



Newly Added, On-Demand Webinars:

Including webinars in additional languages

» **Essential Polymer Characterization:**

The Benefits of Multi-Angle Light Scattering (MALS) and Field Flow Fractionation (FFF) for Determining Molecular Weights, Sizes, and Branching Ratios

» **Charge it!**

Electrophoretic Mobility as a Tool for Characterizing Nanoparticle Stability

» **Molar Mass, Size, Charge, and Interactions:**

Light Scattering Tools for Essential Biophysical Characterization

» **Automation of Biologics Formulation Preparation and Stability Studies**

Mandarin Chinese

[如何用光散射及相关技术充分表征疫苗产品的生物物理学性质](#)

French

La SEC-MALS et au-delà:

Sur la route du développement de biothérapeutiques vus par la diffusion de la lumière

German

MALS – aber richtig!

Absolute Molmassen von Proteinen und Polymeren bestimmen mit SEC MALS

Focus on: Erica Ollmann Saphire, Ph.D.

The Scripps Research Institute Professor of Immunology & Microbial Science; Co-Director, Center of Excellence, Global Virus Network

In 2008, Erica Ollmann Saphire published an article that appeared on the cover of the prestigious journal Nature. After testing more than 50,000 samples, her lab at the Scripps Research Institute had successfully determined the crystal structure of an important glycoprotein on the surface of the Ebola virus which is responsible for virus attachment to host cells. Armed with the glycoprotein's structure, the first Ebola antibody treatment, ZMApp, was developed and used to treat healthcare workers exposed to the virus.

X-ray crystallography is not new to Dr. Ollmann Saphire. She was the first person to solve the structure of an entire human antibody, accomplished while a graduate student at The Scripps Research Institute. Her pioneering work, published in the journal Science, provided a framework for the development of HIV-1 vaccines. It was also the spark for an exciting scientific career that has led to prestigious positions and awards such as the Presidential Early Career Award in Science and Engineering (PECASE) presented by The White House Office of Science and Technology, the Burroughs Wellcome Career Award in Biomedical Sciences, and the American Society of Microbiology's ICAAC Young Investigator Award, just to name a few.

In addition to x-ray crystallography, the Ollmann Saphire lab uses light scattering extensively for protein characterization and quality control. Their TREOS and Optilab T-REX operate in SEC-MALS mode to elucidate structural information of viral proteins, including the native oligomeric state and degree of glycosylation, while their DynaPro dynamic light scattering plate reader verifies the integrity of protein samples prior to small-angle X-ray scattering studies. This information was critical to determining the correct oligomeric state of the Ebola



virus matrix protein and the finding that it unexpectedly forms different oligomeric structures at different times for different functions (*Cell*, 2013).

Last year the group acquired a Calypso CG-MALS system in order to better understand the affinity and stoichiometry of reversibly associating complexes involving glycoproteins and antibodies. Within record time they gained expertise on the instrumentation and software, and were able to produce some valuable findings regarding the complexes that form, written up in an application note titled '[Understanding Antibody and Viral Glycoprotein Interactions using CG-MALS](#)'.

Besides research and service to the scientific community, Erica enjoys a variety of extra-curricular activities, with rugby being one of those passions. She has played forward with the Bay Area SheHawks and San Diego Surfers and managed the United States Eagles team for two tours. She has also travelled extensively including trips to West Africa, Thailand and Mexico. She is married and has two young children. Wyatt Technology is pleased to feature Dr. Ollmann Saphire as a highlighted speaker at ILSC 2015, where she will present "The Molecular Toolkit of Viral Hemorrhagic Fevers".

CAREERS

Excellence is our passion. Wyatt customers know they can rely on Wyatt to provide the best instruments, training and support available. If supporting cutting-edge science is your passion, Wyatt may be the place for you!



- » [Application Scientist – Analytical Services](#)
- » [Application Scientist – Customer Service](#)
- » [Application Scientist – DC Region](#)
- » [Application Scientist – NE Region](#)
- » [Application Scientist – NJ Region](#)
- » [VP of Sales – North America](#)

PRODUCT HIGHLIGHTS

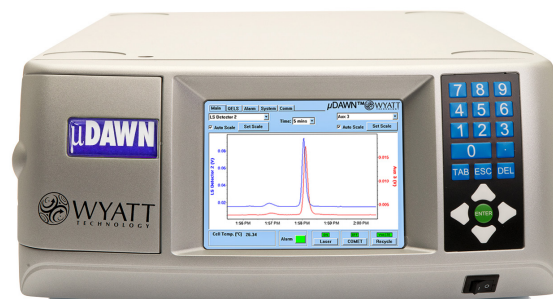
INTRODUCING THE FIRST μ SEC-MALS System

Are you making the transition to UHPLC? The μ DAWN™ brings all the benefits of MALS you already know and love, to the realm of UHPLC.

Take advantage of a complete μ SEC-MALS™ set-up including a μ DAWN, Optilab® UT-rEX™ and WyattQELS™ DLS module to carry out absolute molar mass, size and conjugate analyses with less sample, less solvent, faster run times and better resolution.

Our tests with a Waters Acquity UPLC and BEH-200 columns have shown that μ SEC-MALS analyzes proteins, aggregates and fragments with unprecedented resolution. As standard SEC-MALS detectors are not suitable for UHPLC's ultra-narrow peaks, the μ DAWN and UT-rEX have been developed to maintain the high resolution, low dispersion and high data rate necessary for quality data with such small sample quantities.

[Read here](#) how the μ DAWN and μ SEC-MALS produce robust results with just micrograms or even nanograms of sample!



Protein SEC Columns for Multi-Angle Light Scattering

Have you been searching for a SEC column for proteins that will cease shedding particles after the shortest period of time, improve productivity, and still achieve the best sensitivity?

Search no longer! Wyatt's SEC columns undergo stringent QC tests by Wyatt staff and are guaranteed to provide optimal light scattering measurements.

Wyatt's family of silica-based columns is specifically designed for SEC-MALS protein applications. These columns are made of the highest quality silica with well-controlled pore size and highly reproducible surface chemistry. As a result, Wyatt protein SEC columns provide high resolution, an extended lifetime, excellent lot-to-lot reproducibility, and a full range of pore size selections.

Moreover, these columns have exceptionally low light scattering baseline noise and better pressure shock resistance than any comparable columns on the market. Each column is individually tested in Wyatt Technology's Quality Control Lab prior to shipment, and comes with a custom Certificate of Performance indicating our seal of approval for demanding multi-angle light scattering measurements.

See www.wyatt.com/Columns.

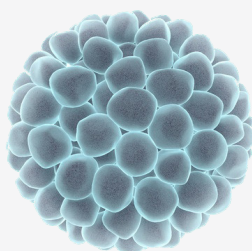


HIGHLIGHT: Wyatt Instruments Illuminate Life Science Research

The upcoming [International Light Scattering Colloquium \(ILSC\)](#) offers several presentations focusing on “Light Scattering in the Life Sciences, Chemistry and Biotechnology”. As a preface to those discussions, we’ve selected a sampling of recent articles that highlight the use of Wyatt instruments within these fields. References for these and many more may be found in our [bibliography of publications](#).

The nuclear pore complex (NPC) is the sole point of access for diffusion of macromolecules into and out of a cell’s nucleus, making it a critical path for gene regulation and transcription. In order to elucidate the NPC’s basic structural components, researchers at the André Hoelz lab at the California Institute of Technology used SEC-MALS with online QELS to characterize the oligomeric state and size of NPC proteins (Stuwe *et al.* “Architecture of the fungal nuclear pore inner ring complex”, *Science* 2015). The SEC-MALS setup incorporated a DAWN HELEOS II and Optilab T-rEX, plus a DynaPro NanoStar connected via optical fiber as the online DLS detector. This work has the potential to contribute towards an understanding of the molecular basis of nucleoporin diseases such as diabetes, primary biliary cirrhosis, Parkinson’s disease and Alzheimer’s disease.

Autophagy is a normal physiological process that allows cellular components to be recycled and utilized as building blocks for new cells. ATG14, a protein that facilitates the autophagy of a specific enzyme complex, is active in a specific



native oligomeric form. Researchers at the Axel Brunger lab in Stanford University characterized the oligomerization of ATG14 using a HELEOS - Optilab SEC-MALS system (Diao *et al.*, “ATG14 promotes membrane tethering and fusion of autophagosomes to endolysosomes”, *Nature* 2015). Identifying the native structure of ATG14 via SEC-MALS can help understand the ATG14-enzyme complex interaction, and eventually identify targets for therapies for Parkinson’s and Alzheimer’s.

Light scattering has also been instrumental in Ebola Virus (EBOV) research. As described recently by the Ollmann Sapphire group at The Scripps Research Institute, an EBOV protein, VP35, helps chaperone EBOV nucleoprotein (NP) to the host cell for replication (Kirchdoefer *et al.* “Assembly of the Ebola Virus Nucleoprotein from a Chaperoned VP35 Complex”, *Cell Reports* 2015). SEC-MALS was used to determine the molar mass of various recombinant forms of EBOV VP35, indicating that only the monomeric form of VP35 chaperones NP. This improved understanding can lead to the development of vaccines that disrupt the VP35-NP interaction and halt the proliferation of the virus. Dr. Erica Ollmann Sapphire will have much more to say on this topic during her presentation “*The Molecular Toolkit for Viral Hemorrhagic Fevers*” at the ILSC.

References to these and other publications specific to light scattering in the life sciences can be accessed on our online bibliography at www.wyatt.com/Bibliography.

THIS TIME IT’S PERSONAL: Social@Wyatt

As a small, family-owned and operated company, we consider every customer to be part of the Wyatt Technology family. We do our best to get to know you first-hand; and, as a family, we like to keep in touch! Several Social Media channels help us accomplish this:



[LinkedIn Groups](#)

Ask your light scattering peers for advice, keep up-to-date with the latest Wyatt news, or reconnect with LSU classmates through our LinkedIn groups.



[Wyatt Technology](#) - open to anyone interested in the technology and applications of light scattering for characterization of macromolecules and nanoparticles in solution. Get the latest news and join the technical discussions.



[Light Scattering University Graduates](#) – for active users of Wyatt instruments.

Join our community [Social@Wyatt](#) for topical discussion groups.