

Course Tuition		
	Standard Course Tuition	\$1700
	“Early Bird” Discount (prior to March 1, 2023)	\$1600
	Multiple Participants Discount (2 or more participants from the same company)	\$1575
	Full Time Graduate Student (Advisor letter certifying full time status must accompany registration)	\$1150
	1 Day Registration	\$850

**FEE FOR UNIVERSITY HOUSING AND ON CAMPUS PARKING**  
*Farrington Square Suite to be shared with 2 other participants each with own room in suite*

University Housing Fees (\$65/person/night)		
Arrival Date & Time:	Departure Date:	
Number of Nights:	Roommate Request:	
Housing Total Costs (= # of days x \$65/person/night)		
University Parking Fees for On Campus Housing (\$10/car/day)		
Arrival Date:	Departure Date:	
Number of Days:		
Parking Total Costs (= # of days x \$15/car/day)		
University Parking for people living off campus: Zoellner Garage** June 5-9, 2023 (no daily fee available)		\$75
Registration, Housing & Parking: Total Cost		
**All participants parking on Lehigh's campus will be asked to complete a 1 page parking permit information sheet and also provide a copy of their car registration or rental car contract. After a participant has registered for parking, Debra Nyby will send a follow up email with the one page parking permit form to complete prior to coming to campus, which will ensure the check in process will be streamlined..		

## Payment Options

Check will be sent with a copy of this registration form  
*(Please make check payable to: Lehigh University)*

Please send an invoice to:

**NOTE:** To pay by credit card visit course website:  
<http://wordpress.lehigh.edu/inadvemu/>

**Refund requests received before May 1, 2023 will be honored in full. After May 1<sup>st</sup>, there will be a processing charge of \$850 deducted for meeting cancellation and a processing charge of one night (\$65.00) will be deducted for housing cancellations.** Please note: Individuals who cancel and are assessed the \$850.00 cancellation fee will be provided with a set of the Short Course Notes.

We would greatly appreciate it if you could check the box below indicating how you learned about this Short Course. Thank you very much for your input.

A Colleague in my company

Previous Attendee

Trade Association

Other (please indicate source): \_\_\_\_\_

# 2023 Short Course Schedule

## Monday, June 5, 2023

**7:00 A.M. – 8:00 A.M. COURSE REGISTRATION**

Rauch Business Center 291/292/293

**8:00 A.M. – 9:30 A.M. Lecture 1**

Free Radical Polymerization Mechanisms and Kinetics (F. Joseph Schork)

**9:30 A.M. – 9:45 A.M. Coffee Break**

**9:45 A.M. – 11:15 A.M. Lecture 2**

Emulsion Polymerization Mechanisms and Kinetics (F. Joseph Schork)

**11:15 A.M. – 11:30 A.M. Coffee Break.**

**11:30 A.M. – 1:00 P.M. Lecture 3**

Branching and Grafting in Emulsion Polymerizations (Peter A. Lovell)

**1:00 P.M. – 2:00 P.M. Lunch**

Rauch Business Center 291/292/293

**2:00 P.M. – 3:30 P.M. Lecture 4**

The Role of Surfactants in Emulsion Polymerization and Kinetics

(Mohamed S. El-Aasser)

**3:30 P.M. – 3:45 P.M. Coffee Break**

**3:45 P.M. – 5:15 P.M. Lecture 5**

Semi-Continuous Emulsion Polymerization and Structured Latexes

(Michael F. Cunningham)

## Tuesday, June 6, 2023

**8:00 A.M. – 9:30 A.M. Lecture 6**

Colloidal Stabilization and Destabilization Mechanisms of Latex Systems

(Mohamed S. El-Aasser)

**9:30 A.M. – 9:45 A.M. Coffee Break**

**9:45 A.M. – 11:15 P.M. Lecture 7**

Characterization of Latex Particle Size and Particle Size Distribution:

Experimental Methods (Andrew Hollingsworth)

**11:15 A.M. – 11:30 A.M. Coffee Break**

**11:30 A.M. – 1:00 P.M. Lecture 8**

Correlation Between Colloidal Structure and Application Properties of

Acrylic Latexes (Bernd Reck)

**1:00 P.M. – 2:00 P.M. Lunch**

Rauch Business Center 291/292/293

**2:00 P.M. – 3:30 P.M. Lecture 9**

Inverse Emulsion Polymerization (Donna Visioli)

**3:30 P.M. – 3:45 P.M. Coffee Break**

**3:45 P.M. – 5:15 P.M. Lecture 10**

Latex Film Formation (Peter A. Lovell)

## Wednesday, June 7, 2023

**8:00 A.M. – 9:30 A.M. Lecture 11**

Miniemulsions: Latex Systems via Polymerization in Monomer Droplets and

Direct Emulsification of Polymer Solutions (Mohamed S. El-Aasser)

**9:30 A.M. – 9:45 A.M. Coffee Break**

**9:45 A.M. – 11:15 P.M. Lecture 12**

Living Radical Polymerization and Advances in Future directions for

Emulsion Polymers/Polymer Colloids (Michael F. Cunningham)

**11:15 A.M. – 11:30 A.M. Coffee Break**

**11:30 A.M. – 1:00 P.M. Lecture 13**

Nonaqueous Colloids: Physics and Applications (Andrew Hollingsworth)

**1:00 P.M. – 2:00 P.M. Lunch**

Rauch Business Center 291/292/293

## Wednesday, June 7, 2023 continued

**2:00 P.M. – 3:30 P.M. Lecture 14**

Latex Rheology (Cesar A. Silebi)

**3:30 P.M. – 3:45 P.M. Coffee Break**

**3:45 P.M. – 5:15 P.M. Lecture 15**

Waterborne Pressure Sensitive Adhesives (Ying-Yuh Lu)

## Thursday, June 8, 2023

**8:00 A.M. – 9:30 A.M. Lecture 16**

Sensors and Controls for Emulsion Polymerization Reactors

(F. Joseph Schork)

**9:30 A.M. – 9:45 A.M. Coffee Break**

**9:45 A.M. – 11:45 A.M. Lecture 17**

Fundamentals and Advancement of Waterborne Epoxy and Polyurethanes

(Bedri Erdem)

**11:45 A.M. – 12:00 P.M. Coffee Break**

**12:00 PM – 1:00 P.M. Lecture 18**

Recent Patent Activity Involving Emulsion Polymers

(Donna Visioli)

**1:00 P.M. – 2:15 P.M. Picnic Lunch**

RBC Courtyard

**2:15 P.M. – 3:45 P.M. Lecture 19**

Film Formation and Film Properties of Acrylic Latexes for Coatings and

Adhesives (Bernd Reck)

**3:45 P.M. – 4:00 P.M. Coffee Break**

**4:00 P.M. – 5:30 P.M. Lecture 20**

Water-Borne Soft-Soft Nanocomposites: Principles and Application Case

Studies (Peter Lovell)

**7:00 P.M. – 9:00 P.M. Lecture 21**

Question & Answer Session (Lecturers and Participants)

## Friday, June 9, 2023

**8:00 A.M. – 9:30 A.M. Lecture 22**

Reactor Design and Scale-up in Emulsion Polymerization

(Michael F. Cunningham)

**9:30 A.M. – 10:00 A.M. Coffee Break**

**10:00 A.M. – 11:30 P.M. Lecture 23**

Monodisperse Latex Particles – Preparation, Surface Modification,

Characterization and Applications (Mohamed S. El-Aasser)

Please visit our website for further registration details, downloadable and on-line registration forms, abstracts of the lectures, biographies of the speakers and other logistics details.

<http://wordpress.lehigh.edu/inadvemu/>

For more information, or to mail in a registration form or check,

Please contact:

Debra Hartzell Nyby, Department of Chemical and Biomolecular Engineering | Lehigh University

111 Research Drive

Bethlehem, PA 18015-4732

Phone: 610-758-3607

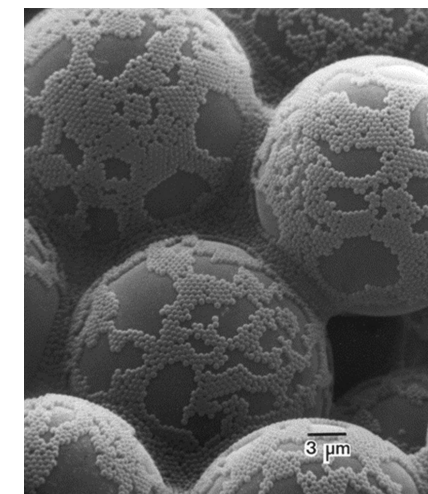
Email: [debra.nyby@lehigh.edu](mailto:debra.nyby@lehigh.edu)



**LEHIGH**  
UNIVERSITY

## 54<sup>th</sup> Annual Short Course

# Advances in Emulsion Polymerization and Latex Technology



*EPI Graduate Research Progress Report # 28 – SEM micrograph showing flocculation of a 154 nm diameter cationic acrylic latex onto the surface of a 19 μm monodisperse polystyrene latex.*

## June 5-9, 2023

*Regarding COVID 19, we will abide by the Center for Disease Control and Prevention (CDC) guidelines and Lehigh University procedures.*

## “Advances in Emulsion Polymerization and Latex Technology”

June 5-9, 2023

### Course Organizer

DR. MOHAMED S. EL-AASSER

*Professor Emeritus*

*Department of Chemical and Biomolecular Engineering*

### Course Design

The course is an in-depth study of the synthesis, characterization, and properties of high polymer latexes. The subject matter includes a balance of theory and applications as well as a balance between chemical and physical problems. Lectures will be given by leading academic professors and industrial scientists. Lectures will begin with introductory material and reviews, and will progress through recent research results and industrial application.

### Location and Time

Rauch Business Center | Lehigh University  
621 Taylor Street | Bethlehem, Pennsylvania 18015

Registration/Check In: Monday, June 5<sup>th</sup> 7:00 a.m. – 8:00 a.m.  
at Rauch Business Center 291/292/293

All Lectures will be held in the Rauch Business Center,  
Perella Auditorium, Room 184

- Lectures will start at 8:00 A.M. Monday to Friday.
- Lectures on Friday will end by noon.

### Participants

The course is designed for engineers and scientists who are actively involved in emulsion work as well as for those who wish to develop expertise in the area. A basic background in chemistry will be assumed. More advanced and experienced participants may elect to attend only those days in which material of specific interest is being presented. All participants will receive a printed set of course notes as well as additional supplementary course materials in PDF format.

### Fees

\$1,700 for the entire five (5) days or \$850 per day for any portion of the course attended. Some discounts are available; see the course registration section for details.

Fees cover registration, a set of notes, five (5) days of beverages at break, and lunch provided for four (4) days.

#### Payment Options:

- Credit Card Payments can be completed on line. Please go to the following website to register for the course, university housing, and university parking to pay by credit card (Visa, Master Charge, or American Express). <http://wordpress.lehigh.edu/inadvemu/>

- Checks payable to Lehigh University should accompany application, which can be downloaded at the following website or using the brochure registration form. <http://wordpress.lehigh.edu/inadvemu/>

- If you require an invoice prior to making payment, please send your registration form for the course, university housing, and university parking to Debra Nyby at [debra.nyby@lehigh.edu](mailto:debra.nyby@lehigh.edu) and an invoice will be sent to you.

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### Transporation an Locale

Bethlehem is located in the heart of the Lehigh Valley about 50 miles north of Philadelphia and 80 miles west of New York City.

It is easily accessible by plane via the Lehigh Valley International Airport (formerly known as the ABE, Allentown-Bethlehem-Easton Airport), by car via the east-west Route 78 (22) and the north-south Northeast Turnpike Extension (I-476) and Routes 309 and 378, or by bus from New York City (Port Authority Terminal).

**Driving Instructions to Rauch Business Center, Lehigh University:**  
<https://www1.lehigh.edu/about/maps-directions/rauch-business-center>

**Driving Instructions to Farrington Square** (on campus housing)  
<http://www.lehigh.edu/campusmap/?mapitloc=Campus%20Square%20A-D>

### Accomodations

Modern air-conditioned University dormitories are available within several blocks of the conference site. Linens are provided. *Single occupants will share a suite (living room and bathroom) with two (2) other course participants.* Each person will have a private bedroom. Please see the following site for a description of the Farrington Square dormitories:

<http://www4.lehigh.edu/housing/residencehalls/az/campussquare.aspx>

A processing charge (\$65.00) of one night will be deducted for housing cancellations after May 1, 2023.

A Continental Breakfast will be available to course participants at Rauch Business Center on June 5th only. Beverages only will be provided with breaks throughout the day. Lunches from Monday to Thursday are included.

Hotels/motels are for the most part far from campus and will require transportation. Hotel/motel reservations should be made by contacting the hotel/motel directly.

Please be sure to mention you are coming to Lehigh University and request the Lehigh University rate.

#### Holiday Inn Express Hotel & Suites

2201 Cherry Lane, Bethlehem, PA; 610-838-6110

#### Historic Hotel Bethlehem

437 Main Street, Bethlehem, PA; 610-625-5000

#### Hyatt Place

45 West North Street, Bethlehem, PA 18018; 610-625-0500

### Lecturers

**Michael Cunningham**, Queen’s University, CANADA

**Mohamed El-Aasser**, Lehigh University, USA

**Bedri Erdem**, Rust-Oleum Corporation, USA

**Andy Hollingsworth**, New York University, USA

**Peter Lovell**, University of Manchester, UK

**Ying-Yuh Lu**, 3M Company (*retired*), USA

**Bernd Reck**, BASF, Germany

**F. Joseph Schork**, Georgia Institute of Technology, USA

**Cesar Silebi**, Lehigh University, USA

**Donna Visioli**, DuPont (*retired*), USA

### Course Registration Form

Participants may reserve a space for the Short Course by completing the form, and either:

**(1)** Mail the registration form in, **along with a check payable to: Lehigh University**

Ms. Debra Hartzell Nyby  
Lehigh University  
111 Research Drive  
Bethlehem, PA 18015-4732 USA  
Telephone: (610) 758-3607  
e-mail: [debra.nyby@lehigh.edu](mailto:debra.nyby@lehigh.edu)

**OR (2)** Completing the form below and sending it as an e-mail attachment to Debra Hartzell Nyby at the e-mail address listed above and indicating whether you will be sending a check or if you would like to be sent an invoice.

**OR (3)** Registering on line at the short course’s website and pay by credit card.  
<http://wordpress.lehigh.edu/inadvemu/>

Mr.  Mrs./Ms. **– PLEASE PRINT**

Name \_\_\_\_\_  
Last Name First Name Initial

Title \_\_\_\_\_

Organization \_\_\_\_\_

Street Address 1 \_\_\_\_\_

Street Address 2 \_\_\_\_\_

City State Zip Code

Country: \_\_\_\_\_

Telephone Fax

E-Mail Address: \_\_\_\_\_

Dates Attending (*please specify*) \_\_\_\_\_