



Emulsion Polymers Consulting and
Education, LLC presents:

Core-Shell Latex Particles- Fundamental Aspects of Morphology Control



***3 Day Interactive Workshop
June 12-14, 2023
On the Campus of the University of
New Hampshire
Durham, New Hampshire USA***

***Faculty
Donald C. Sundberg, PhD
John G. Tsavalas, PhD***

OBJECTIVES This intensive workshop deals with the basic factors controlling particle morphology in synthetic latexes used for coatings, adhesives, impact modifiers and biomedical applications. Thermodynamic principles are applied to investigate the effect of experimental recipe and process variables. Participants will design equilibrium structures and indicate morphology as it would appear in the TEM. Non-equilibrium morphologies and emulsion polymerization kinetics are treated in detail through first principles and participants will engage in problem solving.

INTENDED AUDIENCE: This workshop is directed towards scientists and engineers involved in product development and latex processing operations, and who produce or use water based latexes for architectural and paper coatings, textiles and carpet backings, pressure sensitive adhesives, printing inks, impact modifiers, etc.

STRUCTURE OF THE WORKSHOP: This 3 day workshop will be conducted in a ***highly interactive manner*** with participants being engaged in discussions, demonstrations, and problem solving.

REGISTRATION INFORMATION

The registration fee includes the full book of slides for the workshop, coffee breaks, lunches and Tuesday evening dinner. It does not include accommodations or travel. Early registration is recommended due to the workshop size limitation of 24 participants.

Registration Fee: \$1950 USD
Registration Form --> Go to page 4

Contact for further information:
info@epced.com

HOTELS, TRAVEL, LOCAL ATTRACTIONS

A selection of hotels in the local area is listed on the last page. The Durham, NH area is well served by Logan Airport in Boston, Massachusetts and Manchester-Boston Regional Airport in Manchester, NH. Durham is located in the seacoast region of New Hampshire and many tourist options are available. See <https://www.goportsmouthnh.com/> and the UNH website www.unh.edu.

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Day 1

AM:

1. Goals of the Workshop
2. Examples of particle morphologies
3. Equilibrium and kinetic structures
4. Emulsion polymerization principles
5. Preparation of first stage (seed) latex
6. Post-polymerization treatment

PM:

1. Design of seed latex recipe/process
2. Morphology characterization of structured latex particles
3. Determination of particle structure from analytical data

Day 2

AM:

1. Equilibrium morphologies
2. Free energy concepts/applications
3. Interfacial tensions
4. Effect of cross-linking
5. Effect of functional additives

PM:

1. Design of structured latex particles using equilibrium concepts
2. Kinetic controlled morphology
3. Multi-phase polymerization details
4. Phase diagrams

Day 3

AM:

1. Diffusion in polymers
2. Phase separation, latex aging
3. Design of structured latex particles using reaction rate and diffusion concepts

PM:

1. Structural evolution of latex particle morphology during polymerization
2. Interactive session – developing a morphology matrix
3. Multi-lobed particles – a new equilibrium basis
4. Morphology decision matrix and closing comments

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Faculty Profiles

Professor Donald C. Sundberg has been working in the field of emulsion polymers for more than 54 years. He received a bachelor's degree in chemical engineering from Worcester Polytechnic Institute (Massachusetts) and his Ph.D. from the University of Delaware. He worked on latex based impact modifiers for ABS resins with the Monsanto Company, scaling processes to the 10,000 gallon reactor size. He has extensive research experience in emulsion polymerization and is widely recognized for his work on structured latex particles. This has resulted in over 100 peer reviewed publications and many conference papers. In addition he has conducted many workshops, most notably the one on latex particle morphology control, now in its 25th annual offering. He spent a sabbatical year at the Institute for Surface Chemistry in Stockholm and was Chair of the 1997 Gordon Research Conference on Polymer Colloids. He is the 2016 Mattiello Memorial Lecture awardee from the American Coatings Association. His research interests are in polymerization kinetics in solution, bulk and emulsion systems, interfacial science and polymer morphology control, diffusion in polymers, and coatings. He is an Emeritus Professor of Materials Science at the University of New Hampshire and is the founder of Emulsion Polymers Consulting and Education, LLC.

Professor John G. Tsavalas is an Associate Professor of Chemistry at the University of New Hampshire, the director of the Nanostructured Polymers Research Center, and the deputy director of an interdisciplinary multi-department research center at UNH centered around Advanced Materials (CAMMI). He received his PhD in Chemical Engineering from The Georgia Institute of Technology (Atlanta, GA, USA) after which he was a Senior Research Scientist in The Dow Chemical Company (Midland, MI USA). In industry he worked on a wide variety of polymer colloid related R&D with particular emphasis on nanostructured latex particles. At the University of New Hampshire, Professor Tsavalas' current active areas of research are colloidal nanostructure morphology development, sustainably derived polymer colloids, the interaction and distribution of water in polymer colloids, and dynamic modeling of interactions, kinetics, diffusion, and phase separation in colloidal systems.

Registration Form

Core-Shell Latex Particles – Fundamental Aspects of Morphology Control

Durham, NH 03824 USA

June 12-14, 2023

Name _____

Address _____

City/State _____

Postal Code _____

Country _____

Position or Title _____

Organization _____

Phone _____

Fax _____

E-mail _____

Participant Category

- Standard price for industrial participant: \$1950 (USD)
- Discounted price for additional participant(s) from the same company: \$1850 (USD)
- Academic participant: \$1650 (USD)

There is a non-refundable fee of \$75 (USD). Cancellation of registration can be made up until May 15, 2023 with a full refund less the \$75 processing fee.

Method of Payment:

- Credit Card

___ Visa ___ MasterCard ___ American Express

Card # _____

Visa or MC Security Code # (last 3 digits on back of card) _____

AMEX Security Code # (4 digits on front of card) _____

Expiration date _____

Signature _____

Credit Card billing address (if different than above): _____

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- Wire transfer from bank --- Go to info@epced.com and request banking instructions.

This registration can be sent as an e-mail attachment to info@epced.com. If you prefer not to e-mail your credit information, please write “will call” on the card number line and sign under “signature”. Call 1-603-742-3370 to complete your registration. *This registration form may serve as an invoice for those who register.*

SOME LODGING OPTIONS

WALKING DISTANCE TO UNH (about 10 min):

Holiday Inn Express
2 Main St, Durham, NH 03824
603-868-1234

Three Chimneys Inn
17 Newmarket Rd, Durham, NH 03824
603-868-7800

REQUIRES A VEHICLE:

DOVER, NH

Comfort Inn & Suites
10 Hotel Dr., Dover, NH 03820
603-750-7507

The Garrison Hotel
200 Sterling Way, Dover, NH 03820
603-742-0400

Hampton Inn
9 Hotel Dr., Dover, NH 03820
603-516-5600

Silver Fountain Inn
103 Silver St, Dover, NH 03820
603-750-4200 or 888-548-6888

PORTSMOUTH, NH

Hilton Garden Inn
100 High St, Portsmouth, NH 03801
866-413-1105

Residence Inn Portsmouth Downtown
100 Deer St, Portsmouth, NH 03801
603-968-5095

Sheraton Portsmouth Harborside
250 Market St, Portsmouth, NH 03801
603-431-2300

Hampton Inn & Suites Portsmouth
23 Portwalk Place, Portsmouth NH 03801
603-431-1499

AC Hotels by Marriott
299 Vaughn St, Portsmouth, NH 03801
603-427-0152