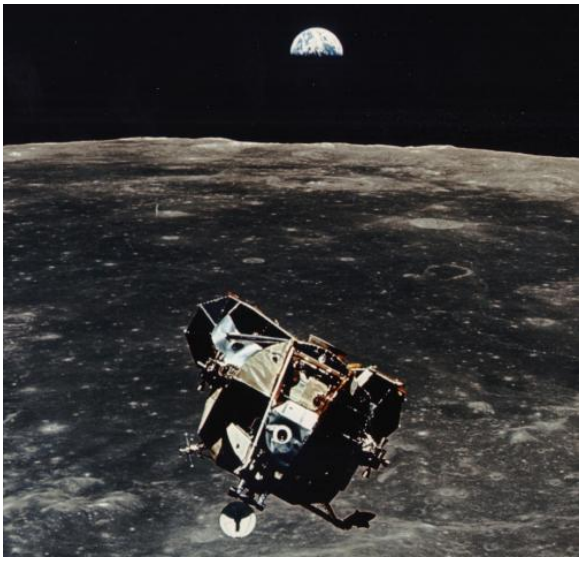
Emulsion Polymers Consulting and Education, LLC presents

*Characterization of Synthetic Latexes**



NASA Website Photo

A 2-hour, On-line Tutorial
September 18, 2025

Faculty
Donald C. Sundberg, PhD
Michael F. Cunningham, PhD

* Emulsion Polymers Consulting and Education (EPCEd) has a curriculum of 21 tutorials, treating both *fundamental* science/engineering topics and others treating *specialized topics*.

TUTORIAL OBJECTIVES: This tutorial treats the generation and evaluation of data obtained from the various analytical methods used to measure the chemical, physical, colloidal and morphological properties of polymer latexes. Synthesis professionals will gain insight to the range of analytical techniques and instruments used to measure a wide variety of latex and particle properties; analytical laboratory professionals will gain insight as to how organic, physical and colloid chemistry combine to create latexes of commercial complexity. Discussions include the realities of data precision and reproducibility, and comparison between different measuring techniques for the same property.

INTENDED AUDIENCE: This tutorial has been designed to introduce both synthetic and analytical professionals to the variety of techniques used to characterize the latex itself and the particles within it. Effective communication between scientists and engineers who synthesize the latexes and analytical professionals responsible for latex analyses will be enhanced by appreciation of the capabilities and limitations of each analytical technique, specific to the context of polymer colloids.

STRUCTURE OF THE TUTORIAL: This on-line tutorial will be presented during a 2-hour period starting at 9:30 AM (EDT) on September 18, 2025. Participants will have received printed, personalized workbooks (full color copies of all the PPT slides) prior to the date of the on-line session. Questions can be placed in the on-line Chat Box and discussed in a 30- minute session immediately following the formal presentation.

WORKSHOP OUTLINE: See next page for a topical outline. Faculty profiles follow on page 3.

REGISTRATION INFORMATION

The registration fee includes the full book of tutorial slides delivered to the registrant's home or business address. Presentations will be made on-line via Microsoft Teams. ***Early registration is recommended*** due to the tutorial size limitation of 30 participants.

Registration Fee: ***$425 USD***
Registration Form – **Go To Page 4**

Contact for further information:
info@epced.com

Characterization of Synthetic Latexes

1.) What does it mean to "fully characterize" the latex? *Comments from the faculty.*

2.) Surfactant adsorption and coverage on the latex particles *Dynamic interchange between the aqueous phase and the particle surface, adsorption areas as affected by polymer chemistry, non-ionic surfactant behavior.*

3.) Colloidal stability – critical coagulation concentration, Zeta Potential *Introduction to the charged double layer for anionic surfactants to understand "stability".*

4.) Thermal analysis - T_g and MFFT
Glass transitions determined by DSC and DMA. "Wet" and "dry" T_g's.

5.) Latex viscosity *Newtonian and Shear Thinning behavior. Viscometers.*

6.) Copolymer composition – NMR, T_g *Proton NMR, thermal analysis*

7.) Polymer molecular weight *GPC techniques to determine MW distributions and averages.*

8.) Residual monomer in the latex *PPM levels after "hold period", GC techniques, "Zero VOC" possibilities.*

9.) Introduction to structured latex particle characterization *Thermal, electron nanoscopic, and chemical titration techniques.*

Faculty Profiles

Professor Donald C. Sundberg has been working in the field of emulsion polymers for 53 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. 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 Michael F. Cunningham has an extensive background in dispersed phase polymerizations, including suspension, emulsion, miniemulsion and dispersion polymerization. He received a bachelor's degree in Engineering Chemistry from Queen's University (Kingston, Ontario, Canada) and his Ph.D. from the University of Waterloo. He spent six years working on dispersed phase polymerizations in the Xerox Corporate Research Group, acquiring experience in process scaleup and technology transfer to manufacturing. He has an active research program in polymer colloids and emulsion polymerization, particularly in the area of living radical polymerization and stimuli-responsive particles, publishing over 250 peer reviewed publications, and holding 26 U.S. patents. He is secretariat of the International Polymer Colloids Group, and previously held the Ontario Research Chair in Green Chemistry and Engineering. He has consulted with a number of companies in the area of emulsion and suspension polymerization, and lectured for over 10 years at industrial short courses on emulsion polymerization in the USA and Switzerland. He is a Partner with Professor Sundberg in the international consulting firm Emulsion Polymers Consulting and Education, LLC.

Characterization of Synthetic Latexes
On-line tutorial
September 18, 2025
Registration Form

Name_____
Mailing address for workbook mailing_____
_____
City/State_____
Postal Code_____
Country_____
Position or Title_____
Organization_____
E-mail_____

The cost of this tutorial is $425 (USD). There is a non-refundable fee of $60 (USD). Cancellation of registration can be made up until August 18, 2025 with a full refund less a $60 processing fee.

Method of Payment

- Credit Card (We accept Visa, MasterCard, American Express)

  Please use this link to SwipeSimple to pay by credit card:

  https://swipesimple.com/links/lnk_c438a57cefb6026fa321548d36253349

- Wire Transfer from bank --- Please go to info@epced.com and request banking instructions.

- Company check (make payable to Emulsion Polymers Consulting and Education, LLC, 39 Nute Rd, Madbury, NH 03823, USA)

Please submit this registration form as an attachment to info@epced.com. Tbis registration may serve as an invoice for those who register.