Paschalis Alexandridis

Contact Info: Department of Chemical and Biological Engineering (CBE)
School of Engineering and Applied Sciences (SEAS)
University at Buffalo (UB), The State University of New York (SUNY)
Buffalo, NY 14260-4200, U S A phone: (716) 645-1183
web: < www.cbe.buffalo.edu/alexandridis > e-mail: <palexand@buffalo.edu>

Education: Ph.D. Chem.Eng. (1994), Massachusetts Institute of Technology (MIT), Cambridge, MA
M.S. Chem.Eng.Practice (1990), Massachusetts Institute of Technology, Cambridge, MA
Dipl.Eng. (Chem.Eng.) (1989), National Technical University (ΕΜΠ), Athens, Greece

Professional Experience:

2009-present	UB Distinguished Professor, Chemical and Biological Eng., University at Buffalo - SUNY
2020-present	Adjunct Professor, Civil, Structural and Environmental Eng., University at Buffalo - SUNY
2008-11, 2013-16	Director of Graduate Studies, Chemical and Biological Eng., University at Buffalo - SUNY
2012-2014	Co-Director, Materials Science and Engineering Program, University at Buffalo - SUNY
2011-2013	Associate Dean for Research and Graduate Education (acting), SEAS, University at Buffalo
2003-2009	Professor, Dept. of Chemical and Biological Engineering, University at Buffalo - SUNY
1997-2003	Assistant & Associate Professor, Dept. of Chemical Eng., University at Buffalo - SUNY
1994-1997	Postdoctoral Fellow, Center for Chemistry and Chemical Eng., Lund University (Sweden)
Visiting Professor	School of Chemical and Environmental Engineering, Technical University of Crete (Greece)
Visiting Professor	Advanced Transdermal Drug Delivery Systems Center, Kyushu University (Japan)
Visiting Scientist	Max-Planck Society Fritz-Haber Institute (Germany), Tokyo University of Science (Japan)

Research Expertise: Soft Matter, Complex Fluids, Interfacial Phenomena, Colloids, Formulations, Self-Assembly, Directed Assembly, Block Copolymers, Biopolymers, Surfactants, PFAS, Water, Ionic Liquids, Nanoparticle Synthesis, Biomass Processing, Plastics Recycling, Green Chem., Product Design
Broader Impacts: Environment (water), Energy (resource utilization), Health (drug delivery)

Research Output & Impact: 2 books edited (*Amphiphilic Block Copolymers*, *Mesoscale Phenomena in Fluid Systems*)
≈205 refereed articles in journals and books, ≈70 conference proceedings, 6 US patents
≈225 invited talks in academia/industry/conferences, ≈430 papers in nat'l/int'l scientific mtgs
Citations: 24,700 (Google Scholar); 19,400 (Web of Sci.); "h" index: 80 (G), 76 (WoS) *(7/2024)*

Honors & Awards (select):
Fellow, Royal Society of Chemistry (RSC) (2020)
Fellow, American Institute of Chemical Engineers (AIChE) (2016)
Fellow, American Association for the Advancement of Science (AAAS) (2012)
Excellence in Graduate Student Mentoring Award (inaugural), University at Buffalo (2012)
SUNY Chancellor's Award for Excellence in Scholarship and Creative Activity (2011)
Jacob F. Schoellkopf Medal, American Chemical Society (ACS) (2010)
SUNY Chancellor's Award for Excellence in Teaching (2006)
Bodossaki Foundation Academic Prize in Applied Science (2005)
International Young Investigator Award, Sigma Xi Scientific Research Society (2002)
Institute Lecturer Award, Japan Research Institute of Material Technology (2001)
Faculty Early Career Development Award (CAREER), National Science Foundation (1999)
Dow Outstanding New Faculty Award, American Society for Engineering Education (1999)

Professional Activities (select):
Editor-in-Chief, J. Dispersion Sci. Tech. (2021-), co-Editor-in-Chief, Int. J. Mol. Sci. (2019-23)
Journal Editor: J. Surf. Deterg. (2013-14, 2018-), Curr. Opin. Colloid Interface Sci. (2001-05)
Chair (2004-2007) and Vice-Chair (2001-2004), AIChE Area 1C: "Interfacial Phenomena"
Board Member, AIChE Nanoscale Science and Engineering Forum (NSEF), 2005-2009
Executive Committee Member, ACS Division of Colloid and Surface Chemistry, 2014-2016
Co-organizer, AIChE Meeting sessions on "Self-Assembly in Solution" (1997-2002, 2010-24), "Biomolecules at Interfaces" (2006-08), "Interfacial Phenomena in Ionic Liquids" (2010-18); symposia on "Self-Assembly" (2002-04, 2016) and "Chemistry of Colloidal Materials" (2010), ACS Colloid & Surface Sci. Symposium (CSSS); symposia on "PFAS: Solution & Interfacial Phenomena" (2020) and "Structure & Transport in Ionic Systems" (2020), ACS Nat'l Meeting

University Service (select):
SUNY Graduate & Research Cmt., 2008-11; SUNY Programs & Awards Committee, 2018-21
UB Graduate School Exec. Cmt., 2010-16; Academic Planning & Assessment Cmt., 2014-24
Faculty Senate, 2005-09, 2012-18, 2019-23, 2024-26; FS Exec. Cmt.; President's Review Board for Tenure & Promotion, 2007-10; SEAS Faculty Personnel Cmt., 2004-07, 2010-11, 2019-22
Courses Developed: Product Design, Colloids & Surfaces, Polymer Eng., Petroleum Eng.

P. Alexandridis < https://scholar.google.com/citations?user=AHDBpe8AAAAJ&hl=en > **Selected Publications**

Self-assembly of amphiphiles / polymers: thermodynamics, structure, and dynamics

- GenX in water: Interactions and self-assembly. Kancharla, S.; Choudhary, A.; Davis, R.; Dong, D.; Bedrov, D.; Tsianou, M.; Alexandridis, P. *Journal of Hazardous Materials* **2022**, *428*, 128137.
- Controlling the self-assembly of perfluorinated surfactants in aqueous environments. Dong, D.; Kancharla, S.; Hooper, J.; Tsianou, M.; Bedrov, D.; Alexandridis, P. *Phys. Chem. Chem. Phys.* **2021**, *23* (16), 10029-10039.
- Structure and composition of mixed micelles formed by nonionic block copolymers and ionic surfactants in water determined by SANS. Kancharla, S.; Bedrov, D.; Tsianou, M.; Alexandridis, P. *J. Colloid Interface Sci.* **2022**, *609*, 456-468.
- Phase behavior and structure of Poloxamer block copolymers in protic and aprotic ionic liquids. Tsoutsoura, A.; He, Z.; Alexandridis, P. *Molecules* **2023**, *28* (21), 7434.
- Mean-field theory prediction of the phase behavior and structure of alkyl-propoxy-ethoxylate surfactants in water. Shusharina, N. P.; Balijepalli, S.; Gruenbauer, H. J. M.; Alexandridis, P. *Langmuir* **2003**, *19* (10), 4483-4492.

Nanostructured polymer systems of biological significance

- Structure of cellulose ether affected by ionic surfactant and solvent. Fajalia, A. I.; Alexandridis, P.; Tsianou, M. *Langmuir* **2023**, *39* (33), 11529-11544.
- Xanthan gum in aqueous solutions. Nsengiyumva, E. M.; Alexandridis, P. *Int. J. Biol. Macromol.* **2022**, *216*, 583-604.
- Well-defined homopolypeptides, copolypeptides and hybrids of poly(L-proline). Gkikas, M.; Iatrou, H.; Thomaidis, N.; Alexandridis, P.; Hadjichristidis, N. *Biomacromolecules* **2011**, *12* (6), 2396-2406.
- Application of fluorescence spectroscopy to quantify shear-induced protein conformation change. Themistou, E.; Singh, I.; Shang, C.; Balu-Iyer, S. V.; Alexandridis, P.; Neelamegham, S. *Biophysical Journal* **2009**, *97* (9), 2567-2576.
- Utilizing temperature-sensitive association of Pluronic F127 with lipid bilayers to control liposome-cell adhesion. Chandaroy, P.; Sen, A.; Alexandridis, P.; Hui, S. W. *Biochim. Biophys. Acta - Biomembranes* **2002**, *1559* (1), 32-42.

Directed assembly: manipulation and organization of polymers or nanoparticles via external fields

- Flexible and stretchable electrically conductive polymer materials for physical sensing applications. Lin, J.-C.; Liatsis, P.; Alexandridis, P. *Polymer Reviews* **2023**, *63* (1), 67-126.
- Nanoparticles in ionic liquids. He, Z.; Alexandridis, P. *Phys. Chem. Chem. Phys.* **2015**, *17* (28), 18238-18261.
- Using nonuniform electric fields to accelerate the transport of viruses to surfaces from media of physiological ionic strength. Docoslis, A.; …; Israel, B. A.; Alexandridis, P.; Abbott, N. L. *Langmuir* **2007**, *23* (7), 3840-3848.
- Influence of shear on solvated amphiphilic block copolymers with lamellar morphology. Zipfel, J.; Berghausen, J.; Schmidt, G.; Lindner, P.; Alexandridis, P.; Richtering, W. *Macromolecules* **2002**, *35* (10), 4064-4074.

Templated synthesis of nanomaterials (metal, semiconductor, carbon, polymer)

- Large-diameter and heteroatom-doped graphene nanotubes decorated with transition metals as carbon hosts for lithium sulfur batteries. Ogoke, O.; …; Su, D.; Alexandridis, P.; Wu, G. *Journal of Materials Chemistry A* **2019**, *7* (21), 13389-99.
- Clicking biodegradable nanoparticles and nanocapsules by UV-induced thiol-ene cross-linking in miniemulsions. Zou, J.; Hew, C. C.; Themistou, E.; Li, Y.; Chen, C.-K.; Alexandridis, P.; Cheng, C. *Advanced Materials* **2011**, *23*, 4274-4277.
- Growth of ZnSe and CdSe nanostructures in self-assembled block copolymer-stabilized templates. Karanikolos, G. N.; Alexandridis, P.; Mountziaris, T. J. *Mater. Sci. Eng. B - Adv. Funct. Solid-State Mater.* **2008**, *152* (1-3), 66-71.
- Ag and Au monometallic and bimetallic colloids: Morphogenesis in amphiphilic block copolymer solutions. Sakai, T.; Alexandridis, P. *Chemistry of Materials* **2006**, *18* (10), 2577-2583.

Products (pharmaceutical, detergent, dispersant, coating, composite, and battery electrolyte formulations)

- Biosurfactants, natural alternatives to synthetic surfactants: Physicochemical properties and applications. Jahan, R.; Bodratti, A. M.; Tsianou, M.; Alexandridis, P. *Advances in Colloid and Interface Science* **2020**, *275*, 102061.
- Amphiphilic block copolymers in drug delivery: Advances in formulation structure and performance. Bodratti, A. M.; Alexandridis, P. *Expert Opinion on Drug Delivery* **2018**, *15* (11), 1085-1104.
- Therapeutic surfactant-stripped frozen micelles. Zhang, Y.; Song, W.; Geng, J.; Chitgupi, U.; Unsal, H.; Federizon J.; Rzayev, J.; Sukumaran, D. K.; Alexandridis, P.; Lovell, J. F. *Nature Communications* **2016**, *7*, 11649.
- Composite polymer electrolytes. Wang, W.; Alexandridis, P. *Polymers* **2016**, *8* (11), 387.
- Block copolymer-nanoparticle composites. Sarkar, B.; Alexandridis, P. *Progress in Polymer Science* **2015**, *40*, 33-62.

Processes (adsorption, emulsification, drying, swelling, dissolution, recycling)

- Recycling of blended fabrics for a circular economy of textiles: Separation of cotton, polyester, and elastane fibers. Choudhury, K.; Tsianou, M.; Alexandridis, P. *Sustainability* **2024**, *16* (14), 6206.
- Economic feasibility of plastic waste conversion to fuel using pyrolysis. Lubongo, C.; Congdon, T.; McWhinnie, J.; Alexandridis, P. *Sustainable Chemistry and Pharmacy* **2022**, *27*, 100683.
- Sequestration of per- and polyfluoroalkyl substances (PFAS) by adsorption: Surfactant and surface aspects. Kancharla, S.; Alexandridis, P.; Tsianou, M. *Current Opinion in Colloid & Interface Science* **2022**, *58*, 101571.
- Population ensemble modeling of biomass dissolution. Ghasemi, M.; Tsianou, M.; Alexandridis, P. *Chemical Engineering Journal* **2018**, *350*, 37-48.
- Effect of phase behavior on emulsification. Kaizu, K.; Alexandridis, P. *J. Colloid Interface Sci.* **2016**, *466*, 138-149.
- Evaporation of water from structured surfactant solutions. Alexandridis, P.; Munshi, S. Z.; Gu, Z. *Industrial & Engineering Chemistry Research* **2011**, *50* (2), 580-589.