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Sven Behrens, Ph.D.

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Professional Profile

Dr. Behrens applies physics, surface chemistry, and engineering principles to manipulate material properties and solve technical challenges associated with product development, manufacturing, and product/process performance. He has been consulting on numerous projects centered on the failure and degradation of polymeric materials used for piping and liquid storage systems.

Dr. Behrens also has experience with the formulation and characterization of polymeric, particulate, or emulsified products serving a wide range of industrial purposes, including drug delivery, crop protection, human and animal nutrition, hair and skin care, cosmetics, and detergency. He has worked extensively on stability issues in colloidal dispersions, emulsions, foams, and protein solutions, and developed emulsion-based technologies for microencapsulation and microreactor fabrication. Drawing on substantial experience in both industrial and academic research, he can support clients in matters concerning product performance, intellectual property, and trade secrets.

Prior to joining Exponent, Dr. Behrens spent 13 years as an Associate Professor of Chemical Engineering at the Georgia Institute of Technology, where he made significant research contributions regarding the stabilization of protein solutions, emulsions, and non-aqueous dispersions, as well as the design of stimulus-responsive emulsions and microcapsules. He is further known for the discovery of capillary foams, a new class of foams with potential applications ranging from food and skin care to oil recovery and oil spill remediation. Before his academic appointment, Dr. Behrens worked for 5 years in the Polymer Research Division of BASF, where he headed a laboratory specialized on light scattering techniques and the advancement of formulation projects.

Academic Credentials & Professional Honors

Ph.D., Natural Sciences, Swiss Federal Institute of Technology, Zürich, 1999

M.S., Physics, University of Göttingen, 1995

B.S., Physics, University of Tübingen, 1991

Sigma Xi

Awarded five NSF (3-5 year) research grants as Principal Investigator (3) or co-PI (2), 2009 - 2020

Outstanding service recognition by the ACS division of colloid and surface chemistry for organizing and chairing the 2019 ACS Colloid & Surface Science Symposium, a 4-day event with over 500 participants from 24 countries

Chosen "Faculty Member of the Semester" for Spring 2008 by Alpha Gamma Delta

Henry and Camille Dreyfus New Faculty Award, 2007

Postdoctoral Research Fellowship of the German Research Foundation (DFG)

Medal of the ETH for outstanding doctoral thesis

Research Fellowship of the Swiss National Science Foundation

Academic Appointments

Adjunct Professor of Chemical Engineering, Georgia Institute of Technology, 2021 – present

Professional Affiliations

American Chemical Society (member)

American Institute of Chemical Engineers (member)

ASTM D01 Paint and Related Coatings, Materials, and Applications (committee member)

Patents

US 10,934,191: Capillary Foams, Methods of Making Thereof, and Uses Thereof Including for Mitigation of Oil Spills, issued March 2, 2021.

US 10,276,370 (WO/2016/109516, JP6637505, EP3241232): Methods for the Continuous, Large-Scale Manufacture of Functional Nanostructures, US application granted April 30, 2019, Japanese application granted January 29, 2020.

WO 2015/103190: Water/Oil/Water Emulsions Including Oil Droplets Containing a Single Aqueous Core Droplet, published July 9, 2015.

WO 2015/103195: Microencapsulated Water/Oil/Water Emulsions Having High Encapsulation Efficiency, published July 9, 2015.

US 8,633,111 (WO/2008/080958, EP 2,106,426, KR101435237B1, CN101595190B, JP5623083B2): Composition for Polishing Surfaces of Silicon Dioxide, European patent granted April 25, 2012, Chinese patent granted February 13, 2013, US patent granted January 21, 2014, South Korean patent granted August 28, 2014, Japanese application granted November 12, 2014.

European patent EP 1,928,593 (WO/2007/033931, DE502006005364D1, ES2334832T3, CA2622990C): Novel Agrochemical Formulations, European patent granted November 11, 2009 (only German and Spanish patent currently active), Canadian application granted June 10, 2014.

US 8,735,518 (WO/2007/074041, EP1966248B1, CA 2,632,844, CN 101346399,): Aqueous Dispersions Of Polymers Which Comprise A Fluorescent Dye, Process For Their Production And Their Use For Marking Materials, Chinese application granted July 4, 2012, US application granted May 27, 2014, Canadian patent granted February 3, 2015, European patent granted July 10, 2019.

European Patent EP 1,756,169 (WO/2005/118,650, RU2417232C2, ES2335115T3, DE502005008485D1): Method for Marking Materials, European patent granted November 11, 2009 (only German and Spanish patent currently active), Russian application granted April 27, 2011.

European Patent EP 1,814,919 (WO/2006/045534, DE502005005491D1, ES2313428T3, JP4696123B2): Method for Producing Multi-Layered Surface Structures, Particles, or Fibers, European patent granted September 24, 2008 (only German and Spanish patent currently active), Japanese application granted June 8, 2011.

German filing DE 102004035737: Particle Stabilized Emulsion (published in the patent literature March 16, 2006, but patent not pursued).

US 7,075,060 (WO/2002/098617, EP1397233B8, DE60206267T2, ES2250661T3, CN1281103C, CA2449337C, JP4184257B2, AU2002314979B2): Optical Peristaltic Pumping with Optical Traps, US patent granted July 11, 2006, European application granted November 23, 2005 (only Spanish patent currently active).

Publications

Mujica M, Mohabir A, Shetty PP, Cline WR, Aziz D, McDowell MT, Breedveld V, Behrens SH, Filler MA. Programming Semiconductor Nanowire Composition with Sub-100 nm Resolution via the Geode Process. Nano Lett 2022; 22: 554-560.

Okesanjo O, Meredith JC, Behrens SH. Structure-Property Relationship in Capillary Foams. Langmuir 2021; 37:10510-10520.

Sharma A, McDonald, MA, Rose HB, Chernoff YO, Behrens SH, Bommarius AS. Modeling Amyloid Aggregation Kinetics: A Case Study with Sup35NM. J Phys Chem B 2021; 125:4955-4963.

Behrens SH. Oil-Coated Bubbles in Particle Suspensions, Capillary Foams, and Related Opportunities in Colloidal Multiphase Systems. Curr Opin Colloid Interface Sci 2020; 50:101384.

Okesanjo O, Tennenbaum M, Fernandez-Nieves A, Meredith JC, Behrens SH. Rheology of capillary foams. Soft Matter 2020; 16;6725-6732. This article was featured prominently on the journal cover.

Mujica M, Tutuncuoglu G, Shetty PP, Mohabir AT, Woods EV, Breedveld V, Behrens SH, Filler MA. The Geode Process: Hollow Silica Microcapsules as a High Surface Area Substrate for Semiconductor Nanowire Growth. ACS Appl Nano Mater 2020; 3:905-913.

Lee J, Zhou Z-L, Behrens SH. Interfaces Charged by a Nonionic Surfactant. J Phys Chem B 2018; 122:6101-6106.

Sharma A, Behrens SH, Chernoff YO, Bommarius AS. Modulation of the Formation of Aβ- and Sup35NM-Based Amyloids by Complex Interplay of Specific and Nonspecific Ion Effects. J Phys Chem B 2018; 122:4972-4981.

Wang SC, Zhang Y, Meredith JC, Behrens SH, Tripathi MK, Sahu KC. The dynamics of rising oil-coated bubbles: experiments and simulations. Soft Matter 2018; 14:2724-2734.

Zhang Y, Wang S, Zhou J, Benz G, Tcheimou S, Zhao R, Behrens SH, Meredith JC. Capillary Foams: Formation Stages and Effects of System Parameters. Ind Eng Chem Res 2017; 56:9533-9540.

Zhang Y, Wang SC, Zhou JR, Zhao RY, Benz G, Tcheimou S, Meredith JC, Behrens SH. Interfacial Activity of Nonamphiphilic Particles in Fluid-Fluid Interfaces. Langmuir 2017; 33:4511-4519.

Behrens SH, Breedveld V, Mujica M, Filler MA. Process Principles for Large-Scale Nanomanufacturing. Annu Rev Chem Biomol Eng 2017; 8:201-226.

Lee J, Zhou Z-L, Behrens SH. Charging Mechanism for Polymer Particles in Nonpolar Surfactant Solutions: Influence of Polymer Type and Surface Functionality. Langmuir 2016; 32:4827-4836.

Lee J, Yezer BA, Prieve DC, Behrens SH. Janus Particles in a Nonpolar Solvent. Langmuir 2016; 32:3095-3099.

Zhang Y, Shitta A, Meredith JC, Behrens SH. Bubble Meets Droplet: Particle-Assisted Reconfiguration of Wetting Morphologies in Colloidal Multiphase Systems. Small 2016; 12:3309-3319.

Trefalt G, Behrens SH, Borkovec M. Charge Regulation in the Electrical Double Layer: Ion Adsorption and Surface Interactions. Langmuir 2016; 32:380-400. This article was the most cited 2016 article (out of 1542 published in the ACS journal Langmuir that year) according to a 2018 editorial by three senior editors.

Sharma A, Bruce KL, Chen BX, Gyoneva S, Behrens SH, Bommarius AS, Chernoff YO. Contributions of the Prion Protein Sequence, Strain, and Environment to the Species Barrier. J Biol Chem 2016; 291:1277-1288.

Lee J, Zhou ZL, Alas G, Behrens SH. Mechanisms of Particle Charging by Surfactants in Nonpolar Dispersions. Langmuir 2015; 31:11989-11999.

Lee J, Zhou Z-L, Behrens SH. Characterizing the Acid/Base Behavior of Oil-Soluble Surfactants at the Interface of Nonpolar Solvents with a Polar Phase. J Phys Chem B 2015; 119:6628-6637.

Zhang Y, Allen MC, Zhao R, Deheyn DD, Behrens SH, Meredith JC. Capillary Foams: Stabilization and Functionalization of Porous Liquids and Solids. Langmuir 2015; 31:2669-2676.

Zhang Y, Wu J, Wang H, Meredith JC, Behrens SH. Stabilization of Liquid Foams through the Synergistic Action of Particles and an Immiscible Liquid. Angew Chem Int Ed 2014; 53:13385-13389. The discovery reported in this article was covered by national and international online news outlets and by a press release of the National Science Foundation.

Rubin J, Sharma A, Linden L, Bommarius AS, Behrens SH. Gauging Colloidal and Thermal Stability in Human IgG1-Sugar Solutions through Diffusivity Measurements. J Phys Chem B 2014; 118:2803-2809.

Behrens SH. Online article: Beyond Beer and Bubble Bath, International Innovation 2014; 160:64-66.

Scrimgeour J, San-Miguel A, Curtis JE, Behrens SH. A generalized approach for measuring microcapsule permeability with Fluorescence Recovery After Photobleaching. J Mater Sci 2013; 48:2215-2223.

Rubin J, Linden L, Coco WM, Bommarius AS, Behrens SH. Salt-induced aggregation of a monoclonal human immunoglobulin G1. J Pharm Sci 2013; 102:377-386.

Rubin J, Khosravi H, Bruce KL, Lydon ME, Behrens SH, Chernoff YO, Bommarius AS. Ion-specific Effects on Prion Nucleation and Strain Formation. J Biol Chem 2013; 288:30300-30308.

Guo Q, Lee J, Singh V, Behrens SH. Surfactant mediated charging of polymer particles in a nonpolar liquid, J Colloid Interface Sci 2013; 392:83-89.

Wang H, Singh V, Behrens SH. Image Charge Effects on the Formation of Pickering Emulsions. J Phys Chem Lett 2012; 3:2986-2990.

San-Miguel A, Behrens SH. Influence of Nanoscale Particle Roughness on the Stability of Pickering Emulsions. Langmuir 2012; 28:12038-12043.

San Miguel A, Behrens SH. Permeability control in stimulus-responsive colloidosomes. Soft Matter 2011: 7:1948-1956.

Hall M, Rubin J, Behrens SH, Bommarius AS. The cellulose-binding domain of cellobiohydrolase Cel7A from Trichoderma reesei is also a thermostabilizing domain. J Biotechnol 2011; 155:370-376.

San Miguel A, Scrimgeour J, Curtis JE, Behrens SH. Smart colloidosomes with a dissolution trigger. Soft Matter 2010; 6:3163-3166.

Rubin J, San Miguel A, Bommarius AS, Behrens SH. Correlating Aggregation Kinetics and Stationary Diffusion in Protein - Sodium Salt Systems Observed with Dynamic Light Scattering. J Phys Chem B 2010:114:4383–4387.

Rubin J, San Miguel A, Bommarius AS, Behrens SH. Correction to “Correlating Aggregation Kinetics and Stationary Diffusion in Protein–Sodium Salt Systems Observed with Dynamic Light Scattering”. J Phys Chem B 2011; 115:10778-10778.

Espinosa CE, Guo Q, Singh V, Behrens SH. Particle Charging and Charge Screening in Nonpolar Dispersions with Nonionic Surfactants. Langmuir 2010; 26:16941-16948.

Guo Q, Singh V, Behrens SH. Electric Charging in Nonpolar Liquids Because of Nonionizable Surfactants. Langmuir 2010; 26:3203-3207.

Borkovec M, Behrens SH. Electrostatic Double Layer Forces in the Case of Extreme Charge Regulation. J Phys Chem B Lett 2008; 112:10795-10799.

Kirwan LJ, Maroni P, Behrens SH, Papastavrou G, Borkovec M. Interaction and Structure of Surfaces Coated by Poly(vinyl amines) of Different Line Charge Densities. J Phys Chem B 2008; 112:14609-14619.

Freudenberg U, Zimmermann R, Schmidt K, Behrens SH, Werner C. Charging and swelling of cellulose films. J Colloid Interface Sci 2007; 309:360-365.

Freudenberg U, Behrens SH, Welzel PB, Muller M, Grimmer M, Salchert K, Taeger T, Schmidt K, Pompe W, Werner C. Electrostatic interactions modulate the conformation of collagen I. Biophys J 2007; 92:2108-2119.

Pericet-Camara R, Papastavrou G, Behrens SH, Helm CA, Borkovec M. Interaction forces and molecular adhesion between pre-adsorbed poly(ethylene imine) layers. J Colloid Interface Sci 2006; 296:496-506.

Ngai T, Auweter H, Behrens SH. Environmental responsiveness of microgel particles and particle-stabilized emulsions. Macromolecules 2006; 39:8171-8177.

Ngai T, Behrens SH, Auweter H. Novel emulsions stabilized by pH and temperature sensitive microgels. Chem Commun 2005; 331-333.

Freudenberg U, Zschoche S, Simon F, Janke A, Schmidt K, Behrens SH, Auweter H, Werner C. Covalent immobilization of cellulose layers onto maleic anhydride copolymer thin films. Biomacromolecules 2005; 6:1628-1634.

Pericet-Camara R, Papastavrou G, Behrens SH, Borkovec M. Interaction between charged surfaces on the Poisson-Boltzmann level: The constant regulation approximation. J Phys Chem B 2004; 108:19467-19475.

Kirwan LJ, Papastavrou G, Borkovec M, Behrens SH. Imaging the coil-to-globule conformational transition of a weak polyelectrolyte by tuning the polyelectrolyte charge density. Nano Lett 2004; 4:149-152.

Behrens SH, Plewa J, Grier DG. Measuring a colloidal particle's interaction with a flat surface under

nonequilibrium conditions - Total internal reflection microscopy with absolute position information. Eur Phys J E 2003; 10:115-121.

Behrens SH, Grier DG. Pair interaction of charged colloidal spheres near a charged wall. Phys Rev E 2001; 64:050401.

Behrens SH, Grier DG. The charge of glass and silica surfaces. J Chem Phys 2001; 115:6716-6721.

Zheng JZ, Behrens SH, Borkovec M, Powers SE. Predicting the wettability of quartz surfaces exposed to dense nonaqueous phase liquids. Environ Sci Technol 2001; 35:2207-2213.

Borkovec M, Behrens SH, Semmler M. Observation of the mobility maximum predicted by the standard electrokinetic model for highly charged amidine latex particles. Langmuir 2000; 16:5209-5212.

Behrens SH, Christl DI, Emmerzael R, Schurtenberger P, Borkovec M. Charging and aggregation properties of carboxyl latex particles: Experiments versus DLVO theory. Langmuir 2000; 16:2566-2575.

Behrens SH, Borkovec M. Influence of the secondary interaction energy minimum on the early stages of colloidal aggregation. J Colloid Interface Sci 2000; 225:460-465.

Behrens SH. Colloidal Particles: Surface Properties, Interactions, and Aggregation Kinetics. Doctoral Thesis, 1999, Swiss Federal Institute of Technology (ETH) Zürich, https://doi.org/10.3929/ethz-a-003822024.

Behrens SH, Borkovec M. Exact Poisson-Boltzmann solution for the interaction of dissimilar charge-regulating surfaces. Phys Rev E 1999; 60:7040-7048.

Behrens SH, Borkovec M. Electrostatic interaction of colloidal surfaces with variable charge. J Phys Chem B 1999; 103:2918-2928.

Behrens SH, Borkovec M. Electric double layer interaction of ionizable surfaces: Charge regulation for arbitrary potentials. J Chem Phys 1999; 111:382-385.

Behrens SH, Semmler M, Borkovec M. Aggregation in sulfate latex suspensions: The role of charge for stability predictions. Prog Colloid Polymer Sci 1998; 110:66-69.

Behrens SH, Borkovec M, Schurtenberger P. Aggregation in charge-stabilized colloidal suspensions revisited. Langmuir 1998; 14:1951-1954.

Schudel M, Behrens SH, Holthoff H, Kretzschmar R, Borkovec M. Absolute Aggregation Rate Constants of Hematite Particles in Aqueous Suspensions: A Comparison of Two Different Surface Morphologies. J Colloid Interf Sci 1997; 196:241-253.

Book Contributions

Borkovec M, Behrens SH, Stabilization of Aqueous Colloidal Dispersions. In Encyclopedia of Surface and Colloid Science, Hubbard AT (ed), Vol 4, Marcel Dekker, Inc., pp 4795 - 4806, 2002, ISBN: 978-0824707965, and in Encyclopedia of Surface and Colloid Science (2nd Edition), Somasundaran P (ed), Vol 7, CRC Press, pp 5765-5774, 2006, ISBN: 978-0849396151.

Grier DG, Behrens SH, 2001, Interactions in Colloidal Suspensions: Electrostatics, Hydrodynamics, and their Interplay. In Electrostatic Effects in Soft Matter and Biophysics, Holm C, Kekicheff P, & Podgornik R (eds), Kluwer Academic, Dordrecht ISBN: 978-1402001963.

Proceedings

Behrens SH, San Miguel A: Control of Surface Roughness with Responsive Nanoparticles, PMSE preprint for invited presentation at the ACS National Meeting in San Diego, CA, March 25-29, 2012, PMSE Preprints Vol 106, ISBN 9780841227279.

Behrens SH, San Miguel A: Stimulus Responsive Nanoparticles in Colloidosomes and Nanocomposite Capsules for Controlled Release Applications, Proceedings of the 2nd International Conference on Nanotechnology: Fundamentals and Applications, Ottawa, ON, Canada, July 27-29, 2011.

San Miguel A, Scrimgeour J, Curtis JE, Behrens SH: pH-Responsive Microcapsules from Double Pickering Emulsions, Proceedings of the 1st International Conference on Smart Polymer Systems, Atlanta, GA, May 5-6, 2010.

Selected Invited Presentations

Behrens SH. Oil-coated bubbles in aqueous suspensions. Plenary lecture for Area 1c (Interfacial Phenomena) of the American Institute of Chemical Engineers, AIChE annual meeting in San Francisco, CA (moved online), November 2020.

Behrens SH. New Materials and Separation Processes Involving Particles in Fluid Interfaces. Invited presentation to the Chemistry Department of the Chinese University of Hong Kong, Hong Kong, October 2018.

Behrens SH. Formulation Opportunities Due Gelling and Jamming in Colloidal Multiphase Systems. ECI Conference on Advances in Cosmetic Formulation Design in Durham, NC, July 2018.

Sharma A, Behrens SH (speaker), Chernoff YO, Bommarius AS. Specific and Non-Specific Ion Effects in the Formation of Aβ and Sup35NM Based Amyloids. Keynote presentation at the 92nd ACS Colloid & Surface Science Symposium at Pennsylvania State University, State College, PA, June 2018.

Behrens SH. Droplet Interactions with Particles and Bubbles in Aqueous Media. Energy Materials and Nanotechnology (EMN) Meeting on Droplets, Victoria, Canada, April 2018.

Behrens SH. Unusual Material Properties Enabled by Nanoparticles in Capillary Foams. 19th International Conference on Nanotechnology and Expo (Nanotek 2017), Atlanta, GA, November 2017.

Behrens SH. Electrostatic Effects in Interactions in Nonpolar Liquids and at Liquid Interfaces. Invited seminar at the ExxonMobil Research and Engineering Company, Anandale, NJ, January 2017.

Behrens SH. Interactions in Colloidal Multiphase Systems: From Fundamental Insights to New Materials and Processes. Invited seminar at Lonza, Inc., Alpharetta, GA, October 2016.

Behrens SH (speaker), Sharma A, Rubin J, Bruce KL, Lydon ME, Khosravi H, Chen B, Gyoneva S, Bommarius AS, Chernoff YO. Ion-Specific Effects on Prion Nucleation, Strain Formation, and the Species Barrier, Colorado Protein Stability Conference of the American Association of Pharmaceutical Scientists in Breckenridge, CO, July 2015.

Behrens SH. Microgel Particles as Emulsion Stabilizers. Summer School on Functional Microgels and Microgel Systems at the Technical University of Aachen (SFB 985), Aachen, Germany, June 2015.

Zhang Y, Meredith JC, Behrens SH (speaker). Capillary foams: A new pathway toward functional porous materials. Invited presentation at the 249th National Meeting of the American Chemical Society in Denver, CO, March 2015.

Behrens SH. Stability in Protein Solutions and Colloidal Multiphase Systems, Invited presentation at Malvern Instruments Inc., Bioscience Development Initiative, Columbia, MD, January 2015.

Zhang Y, Wu J, Wang H, Meredith JC, Behrens SH (speaker). Particles in Liquid Interfaces and the Stabilization of Colloidal Multi-Phase Systems. Invited presentation at the 88th ACS Colloid & Surface Science Symposium at the University of Pennsylvania, Philadelphia, PA, June 2014.

Behrens SH. How do Surfactants Mediate Surface Charging in Nonpolar Liquids? Gordon Research Conference on Colloidal, Macromolecular & Polyelectrolyte Solutions in Ventura, CA, February 2014.

Behrens SH. Particle-Stabilized Emulsions and the Surprising Effects of Particle Charge and Nano-Scale Roughness, Sven H. Behrens, Nano@Tech Seminar Series, Georgia Tech, recording published online at https://smartech.gatech.edu/handle/1853/49839

Behrens SH. The Interaction of Colloidal Particles with Liquid Interfaces and Consequences for Particle-Stabilized Emulsions. Invited seminar at the Department of Chemical & Nuclear Engineering, University of New Mexico, Albuquerque, NM, October 2013.

Behrens SH. Particles at Liquid Interfaces: Overlooked Interactions and Their Consequences for Particle-Stabilized Emulsions. Invited seminar at the Department of Chemical Engineering, City College of New York, New York, NY, April 2013.

San Miguel A, Behrens SH (speaker). Nano-Scale Roughness of Colloidal Particles and its Effect on Particle-Stabilized Emulsions. Invited presentation at the Fall 2012 ACS National Meeting, Philadelphia, PA, August 2012.

Guo Q, Espinosa CE, Singh V, Behrens SH (speaker). Particle Charging and Electrostatic Interaction in Apolar Liquids. Invited seminar in the Department of Physics, Emory University, Atlanta, GA, April 2012.

San Miguel A, Behrens SH (speaker). Control of Surface Roughness and Wetting with Responsive Nanoparticles. Invited presentation at the 2012 ACS National Meeting, San Diego, CA, March 2012.

Behrens SH. Particles as Emulsion Stabilizers: New Opportunities for Stability Control and for the Microencapsulation of Liquid Cargoes. Invited seminar at Kemira Chemicals, Atlanta, GA, October 2011.

San Miguel A, Behrens SH (speaker). Stimulus-Responsive Nanoparticles in Colloidosomes and Nanocomposite Capsules for Controlled Release Applications. 2nd International Conference on Nanotechnology: Fundamentals and Applications (ICNFA) in Ottawa, Canada, July 2011.

Behrens SH. Colloidal Whiffle Balls, Dissoluble Colloidosomes, and Particles with Tunable Roughness. Particles 2011 conference, Berlin, Germany, July 2011.

Behrens SH. Colloidal Assembly of Microcapsules with Tunable Permeability and a Dissolution Trigger. Invited seminar at the University of Washington, Department of Chemical Engineering, Seattle, WA, January 2011.

Behrens SH. Nonpolar Liquids + Nonionic Surfactants = Electric Charges? A Surprising Recipe for Electrostatic Phenomena. Department colloquium at Auburn University, Polymer and Fiber Engineering, Auburn, GA, November 2010.

Behrens SH. Engineering Colloidal Stability. Invited seminar at BASF, Agrochemicals Division, Research Triangle Park, NC, October 2010.

San Miguel A, Scrimgeour J, Curtis JE, Behrens SH (speaker). Colloidosomes with a Dissolution Trigger and Tunable Permeability. Invited seminar at Procter & Gamble, Cincinnati, OH, September 2010.

San Miguel A, Scrimgeour J, Curtis JE, Behrens SH (speaker). Emulsion-Templated Assembly of Stimulus-Responsive Particles: Smart Colloidosomes with Tunable Permeability and Dissolution Trigger. Smart Polymer Systems, International Conference in Atlanta, GA, May 2010.

Behrens SH. Electric Conductivity and Particle Charging in Nonpolar Solutions of Non-Dissociable Surfactants. Invited seminar at Carnegie Mellon University, Chemical Engineering/ Center for Complex Fluids Engineering, Pittsburgh, PA, October 2009.

Behrens SH. From Charge Control in Nonpolar Oils to Emulsion-Based Encapsulation and Controlled Release: a Quest for “Colloidal Engineering Rules”. Invited seminar at BASF, Department of Polymer Physics, Ludwigshafen, Germany, October 2009.

Behrens SH. Surface Modification of Particles and Emulsion Droplets with Functional Polymers. Particles 2005 conference, San Francisco, CA, August 2005.

Behrens SH. Hairy Surfaces and Non-Equilibrium Particle Dynamics. Invited seminar at the Division of Physical Chemistry and Soft Matter, University of Wageningen, The Netherlands, March 2005.

Behrens SH. Neat Effects of Fuzzy Layers: The Role of Interfacial Polymer for Colloidal Interactions, 2nd Intl. Max Bergmann Symposium, Leibniz Institute for Polymer Research, Dresden, Germany, February 2005.

Behrens SH. Colloidal Interaction Studies with Total Internal Reflection Microscopy: Hairy Surfaces and Non-Equilibrium Particle Dynamics. Invited lecture at the Max-Planck Institute for Polymer Research in Mainz, Germany, February 2004.

Behrens SH. Electrostatic Interaction in Colloidal Dispersions. Invited lecture at Northwestern University, Department of Environmental Engineering, Evanston, IL, February 2001.