



## REFERENCES

- Bakker, M.G., Turner, G.L. and Treiner, C. (1999) On the nature of the binding sites for cationic surfactants on silica: Studies using electron paramagnetic resonance spectroscopy. Langmuir, 15, 3078.
- Bruce, C.D., Senapati, S., Berkowitz, M.L., Perera, L. and Forbes, M.D.E. (2002) Molecular dynamics simulations of sodium dodecyl sulfate micelle in water: The behavior of water. Journal of Physical Chemistry B, 106, 10902-10907.
- Dickson, J. and O'Haver, J.H. (2002) Adsolubilization of naphthalene and  $\alpha$ -naphthol in  $C_n$ TAB admicelles. Langmuir, 18, 9171-9176.
- Doi, Y., Kawashima, Y., Matsuoka, K. and Moroi, Y. (2004) O/W Emulsion of n-alkylbenzene/ionic surfactant/water systems. Journal of Physical Chemistry B, 108, 2594-2599.
- Ducker, W.A. and Grant, L.M. (1996) Effect of substrate hydrophobicity on surfactant surface-aggregate geometry. Journal of Physical Chemistry B, 100, 11507-11511.
- Dunaway, C.S., Christian, S.D. and Scamehorn, J.F. (1995) Overview and history of the study of solubilisation. In S.D. Christian and J.F. Scamehorn (Eds.), Surfactant solubilization in surfactant aggregates (pp.3-34). New York, Marcel Dekker.
- Esumi, K., Watanabe, N. and Meguro, K. (1991) Polymerization of styrene adsolubilized in polymerizable surfactant bilayer on alumina. Langmuir, 7, 1775-1778.
- Funkhouser, G.P., Arevalo, M.P., Glatzhofer, D.T. and O'Rear, E.A. (1995) Solubilization and adsolubilization of pyrrole by sodium dodecyl sulfate: polypyrrole formation on alumina surfaces. Langmuir, 11, 1443-1447.
- Goldenberg, M.S., Bruno, L.A. and Rennwanz, E.L. (1993) Determination of solubilization sites and efficiency of water-insoluble agents in ethylene oxide-containing nonionic micelles. Journal of Colloid and Interface Science, 158, 351-363.

- Goloub, T.P. and Koopal, L.K. (1997) Adsorption of cationic surfactants on silica: Comparison of experiment and theory Langmuir, 13, 673.
- Goloub, T.P., Koopal, L.K., Bijsterbosch, B.H. and Sidorova, M.P. (1996) Adsorption of cationic surfactants on silica. Surface charge effects. Langmuir, 12, 3188-3194.
- Hayakawa, K., Mouri, Y., Maeda, T., Satake, I. and Sato, M. (2000) Surfactant-modified zeolites as a drug carrier and the release of chloroquin. Colloid and Polymer Science, 278, 553-558.
- Hedin, N., Sitnikov, R., Furó, I., Henriksson, U. and Regev, O. (1999) Shape changes of C<sub>16</sub>TABr micelles on benzene solubilisation. Journal of Physical Chemistry B, 103(44), 9631-9639.
- Jafvert, C.T. (1991) Sediment- and saturated-soil-associated reactions involving an anionic surfactant (dodecyl sulfate). 2. Partition of PAH compounds among phases. Environmental Science and Technology, 25, 1039-1045.
- Kittiyanan, B., O'Haver, J.H., Harwell, J.H. and Osuwan, S. (1996) Absolubilization of styrene and isoprene in cetyltrimethylammonium bromide admicelle on precipitated silica. Langmuir, 12, 2162-2168.
- Lamont, R.E. and Ducker, W.A. (1998) Surface-induced transformations for surfactant aggregates. Journal of American Chemical Society, 120, 7602-7607.
- Lindblom, G., Lindman, B. and Mandell, L. (1973) Effect of micellar shape and solubilization on counter-ion binding studied by <sup>81</sup>Br NMR. Journal of Colloid and Interface Science, 42, 400-409.
- Liu, J.F. and Ducker, W.A. (1999) Surface-induced phase behavior of alkyltrimethylammonium bromide surfactants adsorbed to mica, silica, and graphite. Journal of Physical Chemistry B, 103, 8558-8567.
- Manne, S., Cleveland, J.P., Gaub, H.E., Stucky, G.D. and Hansma, P.K. (1994) Direct visualization of surfactant hemimicelles by force microscopy of the electrical double layer. Langmuir, 10, 4409.
- Manne, S. and Gaub, H.E. (1995) Molecular organization of surfactants at solid-liquid interfaces. Science, 270, 1480-1482.

- Mata, J.P., Aswal, V.K., Hassan, P.A. and Bahadur, P. (2006) A phenol-induced structural transition in aqueous cetyltrimethylammonium bromide solution. Journal of Colloid and Interface Science, 299(2), 910-915.
- McDermott, D. C., McCarney, J., Thomas, R. K. and Rennie, A. R. (1994) Study of an adsorbed layer of hexadecyltrimethylammonium bromide using the technique of neutron reflection. Journal of Colloid and Interface Science, 162(2), 304-310.
- Morris, V.J., Kirby, A.R. and Gunning, A.P. (1999) Atomic Force Microscopy for Biologists. Singapore: World Scientific Printers.
- Nagarajan, R. (1996) Solubilization in aqueous solutions of amphiphiles, Current Opinion in Colloids and Interface Science, 1, 391.
- Nayyar, S.P., Sabatini, D.A. and Harwell, J.H. (1994) Surfactant adsolubilization and modified admicellar sorption of nonpolar, polar, and ionizable organic contaminants. Environmental Science and Technology, 28, 1874-1881.
- Novaki, L.P. and El Seoud, O.A. (2000) Microscopic polarities of interfacial regions of aqueous cationic micelles: Effects of structures of the solvatochromic probe and the surfactant. Langmuir, 16, 35-41.
- Ochiai, M., Sakai, H., Yamaguchi, A., Yamashita, T., Suzuki, N., Aoshima, S. and Abe, M. (2001) Preparation of polymers by admicellar polymerization method and their carbonization. Journal of Oleo Science, 50, 692.
- O'Haver, J.H. and Harwell, J.H. (1995) Adsolubilization: some expected and unexpected results. In: R. Sharma (Ed.), Surfactant Adsorption and Surface Solubilization (pp. 49-66), Washington, DC, American Chemical Society.
- O'Haver, J.H., Harwell, J.H., Evans, L.R. and Waddell, W.H. (1996) Polar copolymer-surface-modified precipitated silica. Journal of Applied Polymer Science, 59, 1427-1435.
- O'Haver, J.H., Harwell, J.H., Lobban, L.L. and O'Rear, E.A. (1995) Adsolubilization. In S.D. Christian and J.F. Scamehorn (Eds.), Solubilization in surfactant aggregates (pp. 277-296). New York: Marcel Dekker.

- O'Haver, J.H., Harwell, J.H., O'Rear, E.A., Waddell, W.H. and Snodgrass, L.J. (1994) In situ formation of polystyrene in adsorbed surfactant bilayers on precipitated silica. Langmuir, 10, 2588-2593.
- Pradubmook, T., O'Haver, J.H., Malakul, P. and Harwell, J.H. (2003) Effect of pH on adsolubilization of toluene and acetophenone into adsorbed surfactant on precipitated silica. Colloids and Surfaces A, 224, 93-98.
- Rennie, A. R.; Lee, E. M.; Simister, E. A.; Thomas, R. K. (1990) Structure of a cationic surfactant layer at the silica-water interface. Langmuir, 6(5), 1031-1034.
- Saphanuchart, W., Saiwan, C. and O'Haver J.H. (2007) Effect of adsolubilized solutes on 2-D structure of cationic admicelles. Colloids and Surfaces A, Accepted for publication.
- Sarid, D. (1991) Scanning Force Microscopy. New York: Oxford University Press.
- Scales, P.J. (1999) Atomic Force Microscopy. New York: Marcel Dekker.
- See, C.H. and O'Haver, J.H. (2004) Two-dimensional phase transition of styrene adsolubilized in cetyltrimethylammonium bromide admicelles on mica. Colloids and Surfaces A, 243, 169-183.
- Somasundaran, P. and Fuerstenau, D.W. (1966) Mechanisms of Alkyl Sulfonate Adsorption at the Alumina-Water Interface. Journal of Physical Chemistry, 70(1), 90-96.
- Subramanian, V. and Ducker, W. (2000) Counterion effects on adsorbed micellar shape: Experimental study of the role of polarizability and charge. Langmuir, 16, 4447-4454.
- Thammathanukul, V., O'Haver, J.H., Harwell, J.H., Osuwan, S., Na-Ranong, N. and Waddell, W.D. (1996) Comparison of rubber reinforcement using various surface-modified precipitated silica. Journal of Applied Polymer Science, 59, 1741-1750.
- Velegol, S.B., Fleming, B.D., Biggs, S., Wanless, E.J. and Tilton, R.D. (2000) Counterion effects on hexadecyltrimethylammonium surfactant adsorption and self-assembly on silica. Langmuir, 16, 2548-2556.

- Waddell, W.H., O'Haver, J.H., Evans, L.R. and Harwell, J.H. (1995) Organic polymer-surface modified precipitated silica. Journal of Applied Polymer Science, 55, 1627-1641.
- Wanless, E.J., Davey, T.W., Ducker, W.A. (1997) Surface aggregate phase transition Langmuir, 13, 4223-4228.
- Wennerstroem, H. and Lindman, B. (1979) Water penetration into surfactant micelles. Journal of Physical Chemistry, 83, 2931-2932.
- Wiesendanger, R. (1994) Scanning Probe Microscopy and Spectroscopy. Cambridge: Cambridge University Press.
- Wu, J., Harwell, J.H. and O'Rear III, E.A. (1987) Two-dimensional reaction solvents: surfactant bilayers in the formation of ultrathin films. Langmuir, 3, 531-537.
- Yuan, W.L., O'Rear, E.A., Grady, B.P. and Glatzhofer, D.T. (2002) Nanometer-thick poly(pyrrole) films formed by admicellar polymerization under conditions of depleting adsolubilization. Langmuir, 18, 3343-3351.
- Zajac, J., Trompette, J.L. and Partyka, S. (1996) Adsorption of cationic surfactants on a hydrophilic silica surface at low surface coverages: Effects of the surfactant alkyl chain and exchangeable sodium cations at the silica surface. Langmuir, 12(5), 1357-1367.
- Zana, R. (1986) Surfactant Solutions: New Methods of Investigation, New York: Marcel Dekker.

## CURRICULUM VITAE



**Name:** Mr. Wasan Saphanuchart

**Date of Birth:** September 1<sup>st</sup>, 1978

**Nationality:** Thai

**University Education:**

1996-2000 Bachelor Degree of Engineering (Chemical Engineering),  
Faculty of Chemical Engineering, Burapha University, Chonburi, Thailand

2000-2002 Master Degree of Science (Petrochemical Technology), The  
Petroleum and Petrochemical College, Chulalongkorn University, Thailand

**Awards / Scholarships:**

1. Full Scholarship from The Petroleum and Petrochemical College, Chulalongkorn University, 2000-2002.
2. Research scholarship from King Mongkut and Queen Rambhaibarni Foundation Grant, Research title: Atomic Force Microscopic Study of Ultrathin Silica Film Formation by Admicellar Polymerization, 2002.
3. Research scholarship from Rajadabhiseksompoj Grant, Research title: Atomic Force Microscopic Study of Ultrathin Inorganic and Inorganic/Organic Composite Film Formation by Admicellar Polymerization, 2002.
4. Full Scholarship from Royal Golden Jubilee Ph.D. Program, Thailand Research Fund, 2002-2005.

**Journal Publications:**

1. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2007) Effect of adsolubilized solutes on 2-D structure of cationic admicelles. Colloids and Surfaces A: Physicochemical and Engineering Aspects, Accepted.
2. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2007) Qualitative studies of solubilization and adsolubilization of organic solutes by differential scanning calorimetry. Colloids and Surfaces A: Physicochemical and Engineering Aspects, Submitted.

3. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2007) Effect of temperature on adsolubilization of aromatic solutes partitioning to different regions in cationic admicelles. Colloids and Surfaces A: Physicochemical and Engineering Aspects, Submitted.
4. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2007) Differences between adsolubilization of aromatic solutes in cationic admicelles in high region II and region III of surfactant adsorption isotherm. Colloids and Surfaces A: Physicochemical and Engineering Aspects, Manuscript in preparation.

**Proceedings:**

1. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2006, August 28-30) New molecular thermodynamic model for micellar solubilization of simple hydrocarbon in novel ionic micelles. Proceedings of the 11<sup>th</sup> Asia Pacific Progress on Chemical Engineering Congress 2006, Kaula Lumpur, Malaysia.
2. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2003, August 18-21) Topographic characterization of ultra thin silica film grown on mica by admicellar polymerization of tetra-n-butoxysilane. Proceedings of the 1<sup>st</sup> International Symposium on Process Intensification and Miniaturization in Biological, Chemical, Environmental and Energy Conservation Technologies, Newcastle, England.

**Presentations:**

1. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2006, August 28-30) New molecular thermodynamic model for micellar solubilization of simple hydrocarbon in novel ionic micelles. Paper presented at The 11<sup>th</sup> Asia Pacific Progress on Chemical Engineering Congress 2006, Kaula Lumpur, Malaysia.
2. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2005, December 15-20) Effect of surfactant concentrations on adsolubilizations of aromatic solutes below and above solute melting points. Paper presented at Pacificchem Symposia 2005, Hawaii, USA.
3. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2005, December 15-20) Simplified molecular thermodynamic model of adsolubilization of simple

- hydrocarbon solutes. Paper presented at Pacificchem Symposia 2005, Hawaii, USA.
4. Saiwan, C., Rampaiphan, S., O'Haver, J.H., and Saphanuchart, W. (2005, December 15-20) Atomic force microscope studies of the ultrathin polystyrene/silica film formation on mica. Paper presented at Pacificchem Symposia 2005, Hawaii, USA.
  5. Saiwan, C., Ngernthaveekhoon, M., O'Haver, J.H., and Saphanuchart, W. (2005, December 15-20) Formation of titania film on nonporous film on nonporous substrate through admicellar polymerization technique. Paper presented at Pacificchem Symposia 2005, Hawaii, USA.
  6. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2005, April 18-21) Effect of temperature across aromatic solute's melting points on their adsolubilization. Paper presented at Royal Golden Jubilee-Ph.D. Congress VI, Pattaya, Thailand.
  7. Saphanuchart, W., Saiwan, C., and O'Haver, J.H. (2003, August 18-21) Topographic characterization of ultra thin silica film grown on mica by admicellar polymerization of tetra-n-butoxysilane. Paper presented at The 1<sup>st</sup> International Symposium on Process Intensification and Miniaturization in Biological, Chemical, Environmental and Energy Conservation Technologies, Newcastle, England.