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**EDUCATION**

B. S. Chemistry Pohang Univ. of Sci. & Tech. (Korea) 1991

M. S. Chemistry Pohang Univ. of Sci. & Tech. (Korea) 1993

Ph. D. Chemistry Pohang Univ. of Sci. & Tech. (Korea) 1997

**PROFESSIONAL EMPLOYMENT**

* **Associate Professor**

Ulsan National Inst. of Sci. & Tech. Ulsan, Korea 2013 – present

* **Vice President and Co-founder**

Accendo Systems, LLC Champaign, IL 2011 – present

* **President and Co-founder**

Numentek America, Inc. Champaign, IL 2009 – 2011

* **Research Scientist**

University of Illinois Urbana, IL 2005 – 2013

* **Visiting Research Assistant Professor**

University of Illinois Urbana, IL 2002 – 2005

* **Postdoctoral Fellow**

University of Illinois Urbana, IL 2001 – 2002

* **Senior Scientist**

 Pohang Univ. of Sci. & Tech. Pohang, Korea 2000 – 2001

* **Postdoctoral Fellow**

University of Illinois Urbana, IL 1999 – 2000

* **Postdoctoral Fellow**

 Pohang Univ. of Sci. & Tech. Pohang, Korea 1997 – 1999

**PUBLICATIONS** (as of February 26, 2014)

**Total of 61 publications at SCI journals**

 **Web of Science Google Scholar**

***h*-Index: 19 22**

**Total No. of Citations: 1896 2284**

1. **Yu, C., Guan, J., Chen, K., Bae, S. C., and Granick, S., “Single-Molecule Observation of Long Jumps in Polymer Adsorption”, *ACS Nano*, Vol. 7, No. 11, pp. 9735-9742, Nov. 2013.**
2. **Guan, J., Wang, B., Bae, S. C., and Granick, S., “Modular Stitching To Image Single-Molecule DNA Transport”, *Journal of the American Chemical Society*, Vol. 135, No. 16, pp 6006–6009, Apr. 2013.**
3. **Yan, J., Chaudhary, K., Bae, S. C., Lewis, J., and Granick, S., “Janus Magnetic Rods, Ribbons, and Rings”, *Nature Communications*, Vol 4, Article No. 1516, Feb. 2013.**
4. **Yan, J., Bloom, M., Bae, S. C., Luijten, E., and Granick, S., "Linking Synchronization to Self-Assembly using Magnetic Janus Colloids", *Nature*, Vol. 491, Issue 7425, pp 578-581, Nov. 2012. (Highlighted in *News and Views* in the same issue)**
5. **Chen, Q., Yan, J., Zhang, J., Bae, S. C., and Granick, S., "Janus and Multiblock Colloidal Particles" (invited feature article, cover story), *Langmuir*, Vol. 28, Issue 38, pp 13555-13561, Sept. 2012.**
6. **Chen, Q., Bae, S. C., and Granick, S. “Staged Self-Assembly of Colloidal Metastructures”, *Journal of the American Chemical Society*, Vol. 134, No. 27, pp 11080–11083, Jul. 2012.**
7. **Wang, B., Kuo, J., Bae, S. C., and Granick, S., “When Brownian Diffusion is Not Gaussian”, *Nature Materials*, Vol 11, No. 6, pp 481-485, Jun. 2012.**
8. Min, C.-K., Chen, K., Bae, S. C., Cahill, D., and Granick, S., “Heat Transfer at Solid-Gas Interfaces by Photoacoustics at Brillouin Frequencies”, *Journal of Physical Chemistry C*, Vol. 116, Issue 20, pp 10896-10903, May 2012.
9. Kim, M., Anthony, S. M., Bae, S. C., and Granick, S., “Colloid Rotation near the Colloidal Glass Transition”, *Journal of Chemical Physics*, Vol. 135, Issue 5, Art. No. 054905, Aug. 2011.
10. **Chen, Q., Diesel, E., Whitmer, J., Bae, S. C., Luijten, E., and Granick, S. “Triblock Colloidal Spheres for Directed Self-Assembly”, *Journal of the American Chemical Society*, Vol. 133, Issue 20, pp 7725-7727, May 2011.**
11. Wong, J., Hong, L., Bae, S. C., and Granick, S., “Polymer Surface Diffusion in the Dilute Limit”, *Macromolecules*, Vol. 44, Issue 8, pp 3073-3076, Mar. 2011.
12. Yu, Y., Anthony, S. M., Bae, S. C., and Granick, S., “How Liposomes Diffuse in Concentrated Liposome Suspensions”, *Journal of Physical Chemistry B*, Vol. 115, Issue 12, pp 2748-2753, Mar. 2011.
13. **Chen, Q., Bae, S. C., and Granick, S., “Directed Self-Assembly of a Colloidal Kagome Lattice”, *Nature*, Vol. 469, Issue 7330, pp 381-384, Jan. 2011.**
14. **Chen, Q., Whitmer, J. K., Jiang, S., Bae, S. C., Luijten, E., and Granick, S., “Supracolloidal Reaction Kinetics of Janus Spheres”, *Science*, Vol. 331, Issue 6014, pp 199-202, Jan. 2011.**
15. Wong, J., Hong, L., Bae, S. C., and Granick, S., “Fluorescence Recovery after Photobleaching Measurements of Polymers in a Surface Forces Apparatus”, *Journal of Polymer Science Part B: Polymer Physics*, Vol. 48, Issue 24, pp 2582-2588, Dec. 2010.
16. Granick, S., Bae, S. C., Wang, B., Kumar, S., Guan, J., Yu, C., Chen, K., and Kuo, J., “Single-Molecule Methods in Polymer Science”, *Journal of Polymer Science Part B: Polymer Physics*, Vol. 48, Issue 24, pp 2542-2543, Dec. 2010.
17. Granick, S., Bae, S. C., Kumar, S., and Yu, C., “Confined Liquid Controversies near Closure” (Viewpoint), *Physics*, Vol. 3, 73, Aug. 2010.
18. **Wang, B., Guan, J., Anthony, S. M., Bae, S. C., Schweizer, K. S., and Granick, S., “Confining potential when a biopolymer filament reptates”, *Physical Review Letters*, Vol 104, No. 11, Article No. 118301, Mar. 2010.**
19. **Yu, Y., Vroman, J., Bae, S. C., and Granick, S., “Vesicle Budding Induced by Pore-Forming Peptide”, *Journal of the American Chemical Society*, Vol. 132, No. 1, pp. 195-201, Jan. 2010. (Highlighted in *Nature*, Vol. 463, pp 439-440, Jan. 2010)**
20. **Wang, B., Anthony, S. M., Bae, S. C., and Granick, S., “Anomalous yet Brownian”, *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 106, No. 36, pp.15160-15164, Sept. 2009.**
21. Yu, Y., Anthony, S. M., Bae, S. C., Luijten, E., and Granick, S., “Biomolecular science of liposome-nanoparticle constructs”, *Molecular Crystals and Liquid Crystals*, Vol. 507, No. 1, pp.18-25, 2009.
22. **Granick, S. and Bae, S. C., “A curious antipathy of water”, *Science*, Vol. 322, pp.1477-1478, Dec. 2008.**
23. **Wang, B., Zhang, L., Bae, S. C., and Granick, S., “Nanoparticle-induced surface reconstruction of phospholipids membranes”, *Proceedings of the National Academy of Sciences of the United States of America*, Vol. 105, No. 47, pp.18171-18175, Nov. 2008. (Highlighted in *Nature Nanotechnology*, Vol. 4, pp 84-85, Feb. 2009)**
24. Bae, S. C., Wong, J. S., Kim, M., Jiang, S., Hong, L., and Granick, S., “Using light to study boundary lubrication: Spectroscopic study of confined fluids”, *Philosophical Transactions Series A*, Vol. 366, No. 1869, pp.1443-1454, Apr.. 2008.
25. Jiang, S., Bae, S. C., and Granick, S., “PDMS Melts on Mica Studied by Confocal Raman Scattering”, *Langmuir*, Vol. 24, No. 4, pp. 1489-1494, Feb. 2008.
26. **Bae, S. C. and Granick, S., “Molecular motion at soft and hard interfaces: from phospholipid bilayers to polymers and lubricants”(invited review), *Annual Review of Physical Chemistry*, Vol. 58, pp. 352-374, Jun. 2007.**
27. Yu, Y., Anthony, S., Zhang, L., Bae, S. C., and Granick, S., “Cationic nanoparticles stabilize liposomes better than anionic ones”, *Journal of Physical Chemistry C*, Vol. 111, No. 23, pp. 8233-8236, Jun. 2007.
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30. Granick, S. and Bae, S. C., “Open questions about polymer interfacial diffusion”, *Journal of Polymer Science Part B: Polymer Physics*, Vol. 44, pp. 3434-3435, Dec. 2006.
31. **Zhang, L., Hong, L., Yu, Y., Bae, S. C., and Granick, S., “Nanoparticle assisted immobilization of phospholipids liposomes”, *Journal of the American Chemical Society*, Vol. 128, No. 28, pp. 9026-9027, Jun. 2006.**
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37. **Mukhophadyay, A., Bae, S. C., Zhao, J., and Granick, S., “How confined lubricants diffuse during shear”, *Physical Review Letters*, Vol. 93, No. 23, Article No. 236105, Dec. 2004.**
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**DESIGNING AND BUILDING EXPERIENCE**

**Commercial Product Development(Accendo Systems)**

* Femtosecond Ti:Sapphire Laser – VolcanTM Series from Accendo Systems

The first air-cooled compact femtosecond Ti:Sapphire laser in the market

Specifically designed for biomedical applications

* High Frequency Nanosecond Ti:Sapphire Laser – SonokhanTM Series from Accendo Systems

Designed for photoacoustic microscope

* Femtosecond Cr:Forsterite Laser – MicanTM Series from Accendo Systems
* Modular Fluorescence Microscope – ModusTM from Accendo Systems

State-of-the-Art fluorescence techniques in one microscope body

TIRF, HILO, Epifluorescence, FCS, Confocal Imaging, etc.

* Compact Multiphoton Microscope – AltusTM from Accendo Systems

**Customized Optical Setups for Research**

* Confocal Raman Microscope
* Fluorescence Correlation Spectroscopy(FCS)
* Total Internal Reflection Fluorescence(TIRF) Microscope
* Highly Inclined Light Sheet Optical(HILO) Microscope
* Epifluorescence Microscope
* Stimulated Emission Depletion(STED) Microscope
* Laser Scanning Confocal Microscope
* Fluorescence Recovery After Photobleaching(FRAP)
* Dark-field Optical Microscope
* Bright-field Optical Microscope with Magnetic and Electric Field Modulation
* Time-Correlated Single Photon Counting
* Fluorescence Lifetime Imaging Microscope
* Time-Resolved Fluorescence Depolarization Measurement
* Dual Cavity Mode-Locked Ti:Sapphire Laser
* Femtosecond Ellipsometry Measurement
* Fluorescence Upconversion Technique
* Multipass Amplifier Laser
* Optical Parametric Amplifier
* Transient Absorption Measurement
* Transient Grating Measurement
* Optical Tweezers Setup
* Many other optical systems

**PROFESSIONAL MEMBERSHIPS**

* American Chemical Society
* American Physical Society
* SPIE - the International Society for Optics and Photonics
* Optical Society of America