



Department of
Polymer Science
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Biography:

Tianbo Liu received his Ph.D. in Chemistry from the Stony Brook University in 1999, under the guidance of Benjamin Chu. During this time he studied block copolymer solutions by using scattering techniques. After spending two more years in the same group as a postdoctoral associate, he started his independent research career at the Physics Department, Brookhaven National Laboratory. In Jan. 2005 he moved to Lehigh University as an assistant professor of Chemistry, and was promoted to associate professor in 2009 and full professor in 2012. He started to work at the Department of Polymer Science University of Akron in Jan. 2013.

Awards/Accomplishments:

- Eleanor and Joseph F. Libsch Early Career Research Award, 2008
- Alfred P. Sloan Foundation Fellow, 2008
- National Science Foundation CAREER Award, 2006

Research Interests:

Liu's lab studies the fundamental physical chemistry of complex solution systems, including macroions, inorganic-organic hybrids, colloids/nanoparticles, surfactants/micelles, polelectrolytes, block copolymers and biomacromolecules. His research aims for linking physical properties of advanced materials to their applications, and understanding certain important biological processes by simplified models.

Industrial Sector Focus:

Nanotechnology, emulsion, coating, micelle/vesicle, drug loading/delivery.

Unique Laboratory Facilities:

Exploring complex solution systems by using static and dynamic laser light scattering, Zeta potential analysis, NMR and TEM techniques.

Recent Publications/Patents:

1. Panchao Yin, Jin Zhang, Tao Li, Xiaobing Zuo, Jian Hao, Anna Marie Warner, Soma Chattopadhyay, Tomohiro Shibata, Yongge Wei*, and Tianbo Liu*, Self-Recognition of Structurally Identical, Rod-shaped Macroions with Different Central Metal Atoms during Their Assembly Process, *J. Am. Chem. Soc.*, 135, 4529, **2013**.
2. Panchao Yin, Dong Li and Tianbo Liu*, Self-assembly of macro-polyoxoanions and amphiphilic polyoxometalate-organic hybrids in solution, *Chem. Soc. Rev.*, 41, 7368, **2012**.
3. Tianbo Liu*, Melissa L. K. Langston, Dong Li, Joseph M. Pigga, Céline Pichon, Ana Maria Todea, and Achim Müller, Self-recognition among Different Polyprotic Macroions During Assembly Process in Dilute Solutions, *Science*, 331, 1590, **2011**.
4. Dong Li, Jie Song, Panchao Yin, Silas Simotwo, Andrew J. Bassler, Yuyu Aung, James Roberts, Kenneth I. Hardcastle, Craig L. Hill* and Tianbo Liu*, Inorganic-Organic Hybrid Vesicles with Counterion- and pH-Controlled Fluorescent Properties, *J. Am. Chem. Soc.*, 133, 14010, **2011**.
5. Dong Li, Wu Zhou, Kai Landskron, Sota Sato, Christopher J. Kiely, Makoto Fujita* and Tianbo Liu*, A Viral Capsid Type Vesicle Self-assembled from $M_{12}L_{24}$ Metal-Organic Hybrid Nanocages, *Angew. Chem. Int. Ed.*, 50, 5182, **2011**.
6. Panchao Yin, Pingfan Wu, Dong Li, Zicheng Xiao, Emily Bitterlich, Peng Cheng, Tianbo Liu,* and Yongge Wei*, A Double-tailed, Fluorescently Active Surfactant with Hexavanadate as Giant Polar Head Group, *Angew. Chem. Int. Ed.*, 50, 2521, **2011**.