



Department: School of Materials Science and Engineering

Professional field: Polymer material

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Profile

2019- present: Professor, East China University of Science and Technology, Shanghai, China

2004-2018: Research associate, University of Toronto, Toronto, Canada

1997-2002: Ph.D. Polymer Science, Laval University, Quebec City, Canada

Research Field

Self-assembly of coil-crystalline block copolymers, including synthesis of crystalline polymers, crystallization-driven self-assembly in solution, preparation of biomedical nano-carriers and other complex nanostructures.

Research results and selected published papers

1. G.Guerin*, M. Cruz, Q. Yu « Formation of 2D and 3D Multi-tori Mesostructures via Crystallization-driven Self-Assembly » Sci. Adv.2020,.
2. G. Guerin*, G. Molev, D. Pichugin, P. A. Rupar, F. Qi, M. Cruz, I. Manners, and M. A. Winnik* « Effect of Concentration on the Dissolution of 1-dimensional Polymer Crystals: A TEM and NMR study » Macromolecules, 2019, 52, 208-216.
3. L. Jia, G. Guerin*, Y. Lu, Q. Yu, I. Manners, and M. A. Winnik* « Creating Biomorphic Barbed and Branched Mesostructures in Solution through Block Copolymer Crystallization » Angew. Chem. Int. Ed.2018, 57, 17205 –17210.
4. M. Cruz, J. Xu, Q. Yu, G. Guerin*, I. Manners, M. A. Winnik* « Visualizing Nanoscale Coronal Segregation in Rod-like Micelles Formed by Co-assembly of Binary Block Copolymer Blends », Macromol. Rapid Commun.2018, 1800397.
5. Q. Yu, D. Pichugin, M. Cruz, G. Guerin*, I. Manners, M. A. Winnik* « NMR Study of the Dissolution of Core-crystalline Micelles », Macromolecules, 2018, 51, 3279–3289.
6. G. Guerin*, P. Rupar, I. Manners, M. A. Winnik* « Explosive Dissolution and Trapping of Block Copolymer Seed Crystallites », Nat. Commun.2018, 9, 1158.
7. G. Guerin, P. Rupar, G. Molev, I. Manners, H. Jinnai*, M. A. Winnik* « Lateral Growth of 1D Core-crystalline Micelles upon Annealing in Solution », Macromolecules, 2016, 49, 7004-7014.
8. H. Zhou, Y. Lu, M. Zhang, G. Guerin*, I. Manners and M. A. Winnik* « PFS-b-PNIPAM: A First Step toward Polymeric Nanofibrillar Hydrogels Based on Uniform Fiber-Like Micelles », Macromolecules 2016, 49, 4265-4276.
9. L. Jia, A. Petretic, G. Molev, G. Guerin*, I. Manners and M. A. Winnik* « Hierarchical Polymer–Carbon Nanotube Hybrid Mesostructures by Crystallization-Driven Self-Assembly », ACSNano 2015, 9, 10673-10685.
10. H. Zhou, Y. Lu, H. Qiu, G. Guerin*, I. Manners* and M. A. Winnik* « Photocleavage of the Corona Chains of Rigid-rod Block Copolymer Micelles », Macromolecules 2015, 48, 2254-2262.
11. L. Jia, L. Tong, L.Yi, A. Petretic, G. Guerin*, I. Manners* and M. A. Winnik* « Templated Fabrication of Fiber-basket Polymersomes via Crystallization-driven Block Copolymer Self-assembly », J. Amer. Chem. Soc. 2014, 136, 16676-16682.
12. G. Guerin, G. Cambridge, M. Soleimani, S. Mastour Tehrani, I. Manners*, M. A. Winnik* « Form Factor of Asymmetric Elongated Micelles: Playing with Russian Dolls Has Never Been so Informative », J. Phys. Chem. B 2014 118, 10740-10749.
13. L. Jia, G. Zhao, W. Shi, N. Coombs, I. Gourevich, G. C. Walker, G. Guerin*, I. Manners* and M. A. Winnik* « A Design Strategy for the Hierarchical Fabrication of Colloidal Hybrid Mesostructures », Nat. Commun. 2014, 3882.
14. J. Qian, Y. Lu, A. Chia, M. Zhang, P. A. Rupar, N. Gunari, G. C. Walker, G. Cambridge, F. He, G. Guerin*, I. Manners* and M. A. Winnik* « Self-seeding in One Dimension: A Route to Uniform Fiber-like Nanostructures from Block Copolymers with a Crystallizable Core-forming Block », ACSNano 2013, 7, 3754-3766.
15. J. Qian, Y. Lu, G. Cambridge, G. Guerin*, I. Manners* and M. A. Winnik* « Polyferrocenylsilane Crystals in Nanoconfinement: Fragmentation, Dissolution, and Regrowth of Cylindrical Block Copolymer Micelles with a Crystalline Core », Macromolecules, 2012, 45, 8363-8372.
16. G. Guerin, F. Qi, G. Cambridge, I. Manners* and M. A. Winnik* « Evaluation of the Cross-section of Elongated Micelles by Static and Dynamic Light Scattering », J. Phys. Chem. B 2012, 116, 4328-4337.
17. G. Guerin, H. Wang, I. Manners* and M. A. Winnik* « Fragmentation of Fiberlike Structures: Sonication Studies of Cylindrical Block Copolymer Micelles and Behavioral Comparisons to Biological Fibrils », J. Amer. Chem. Soc. 2008, 130, 14763-14771.
18. X.-S. Wang, G. Guerin, H. Wang, Y. Wang, I. Manners* and M. A. Winnik* « Cylindrical Block Copolymer Micelles and Co-micelles of Controlled Length and Architecture », Science 2007, 317, 644-647.