



SEMINAR

Precision Self-Assembly of Liquid Crystalline Block Copolymers

Date: 4 August, 2026 (Tuesday)

Time: 10:30 a.m.

Venue: Room 7-34 & 7-35
Haking Wong Building
HKU

Speaker: Professor Xiaoyu Li
School of Materials Science and Engineering
Beijing Institute of Technology
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Abstract:

Self-assembly behaviors are ubiquitous in nature, giving rise to diverse morphologies, intricate structures, and precise dimensions, which artificial assembly systems constantly strive to emulate and even surpass. Achieving precise control over the morphology and size of assembled structures is particularly critical for developing diverse functionalities and advancing practical applications. Therefore, developing an efficient self-assembly method that is operationally simple, broadly applicable, and highly tunable has become a key bottleneck in this field. In recent years, our group has used liquid crystalline block copolymers as a model system and conducted systematic research on precision self-assembly in solution, addressing three core issues. First, by temporally and spatially separating the nucleation and growth stages, we established a straightforward in-situ nucleation-growth pathway that enables precise control over the assembly process. Second, we extended this strategy to weakly ordered and even amorphous systems, thereby clarifying the boundary conditions for precision self-assembly. Third, building on these insights, we achieved high-precision control over assembly processes, overcoming the challenge of large-scale production of precise nano-assemblies. These advances facilitate the investigation of structure–property relationships and pave the way for practical applications.

Biography:

Xiaoyu Li (李霄羽) is a Professor at the School of Materials Science and Engineering, Beijing Institute of Technology. His research mainly focuses on precision self-assembled nanomaterials and the synthesis and application of novel energetic polymers. He has published over 50 papers in high-impact international journals such as Nature Communications, Journal of the American Chemical Society, and Angewandte Chemie International Edition. He has led more than 10 projects funded by the National Natural Science Foundation of China, as well as programs from the State Administration of Science, Technology and Industry for National Defense. He received the First Prize of the National Defense Technology Invention Award in 2023 and 2025.

ALL INTERESTED ARE WELCOME

For further information, please contact Professor L. Xu at 3917 2628.