

## SMS Spring 2024 Seminar Series

Friday January 26 | 3:00 pm | Biodesign Auditorium

### Intracellular supramolecular assemblies for cancer therapy

Subcellular compartmentalization is a key feature of eukaryotic cells. Selectively targeting subcellular organelles, though holding many exciting opportunities for biomedicine, remains underdeveloped. Enzyme-instructed self-assembly (EISA), an approach that integrate enzymatic reactions and self-assembly, allows dynamic conversions from small molecules into larger supramolecular nanostructures for targeting subcellular organelles. This approach also represents an emerging frontier of chemistry in complex systems. In this talk, we discuss the use of EISA to generate intracellular supramolecular assemblies for targeting mitochondria, endoplasmic reticulum, Golgi apparatus, lysosomes, and nucleus. Particularly, we will show the use of EISA to generate peptide assemblies, as in-situ nanomedicine, for developing therapeutics to counter drug resistance and immunosuppression in cancer therapy.

### Bing XU, PhD

*Professor, Brandeis University*

Bing Xu, after receiving his BS and MS degrees from Nanjing University in 1987 and 1990, respectively, obtained his PhD in 1996 from the University of Pennsylvania. Before starting his independent research at the Hong Kong University of Science and Technology (HKUST) in August 2000, he was an NIH postdoctoral fellow at Harvard University. Dr. Xu was a tenured professor at HKUST until July 2008 before he returned to Boston. He currently is a professor in the Department of Chemistry at Brandeis University. He has made pioneering contributions to metallogels, multifunctional magnetic nanoparticles, self-delivery drugs, supramolecular hydrogels, and enzyme-instructed self-assembly for in-situ anticancer nanomedicine. His current research focuses on the development of enzymatic noncovalent synthesis in materials, biology, and medicine.

