

## BING XU

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### A. Education/Training

Harvard University	Postdoctoral Fellow	97-00
Massachusetts Institute of Technology	Postdoctoral Fellow	96-97
University of Pennsylvania	PhD	1996
Nanjing University	MS	1990
Nanjing University	BS	1987

### B. Positions and Honors

#### Positions and Employment

2009.11-	Professor, Brandeis University.
2008.7-2010.6	Professor, The Hong Kong University of Sci & Technol.
2006.1-2008.6	Associate Professor, The Hong Kong University of Sci & Technol.
2006.1-2008.7	Assistant Professor, The Hong Kong University of Sci & Technol.

#### Honors & Awards

2014-2017	“Highly-cited researchers” in Chemistry.
2014	Plenary Speaker, 4th International Colloids Conferences
2013	Kenneth Rainin Foundation Innovator Award
2008-2011	Human Frontier Science Program Award 2008
2008-2011	Visiting Professor, Sun Yat-sen University
2007	Distinguished Lectureship Award, CSJ Asian International Symposium, Chemical Society of Japan
2001	DuPont Asian & European Young Investigator Award
1997	NIH Postdoctoral Fellowship
1996	Glenn Brown Award of International Liquid Crystal Society
1990	Guanghua Award for graduate study (Nanjing University, China)

### C. Publications, preprints, talks, and conference presentations

#### Peer-reviewed Publications

##### 2017

1. Wang, H. M.; Shi, J. F.; Feng, Z. Q. Q; Zhou, R.; Wnag, S. Y.; Rodal, A. A.; Xu, B.\* “An in-situ Dynamic Continuum of Supramolecular Phosphoglycopeptides Enables Formation of 3D Cell Spheroids” *Angew. Chem. Int. Ed.* 2017, in press.

2. Zhou, J.; Du, X. W.; Berciu, C.; Del Signore, S. J.; Chen, X. Y.; Yamagata, N.; Rodal, A. A.; Nicastro, D.; Xu, B.\* "Cellular Uptake of A Taurine Modified, Ester Bond Decorated D-Peptide Derivative via Dynamin Dependent Endocytosis and Macropinocytosis" **Mol. Therapy**, 2017, in press.
3. Feng, Z. Q. Q.; Wang, H. M.; Chen, X. Y.; Xu, B. "Self-Assembling Ability Determines the Activity of Enzyme-Instructed Self-Assembly for Inhibiting Cancer Cells" **J. Am. Chem. Soc.** 2017, 139, 15377-15384.
4. Zhou, N.; Chao, Z.Y.; Xu, B. "Functional Hyper Crosslinkers" **Chem. Eur. J.**, 2017, in press.
5. Feng, Z. Q. Q.; Zhang, T. F.; Wang, H. M.; Xu, B. "Supramolecular Catalysis and Dynamic Assemblies for Medicine" **Chem. Soc. Rev.**, 2017, 46, 6470-6479.
6. Du, X. W.; Zhou, J.; Li, X. M.; Xu, B.\* "Self-Assembly of Nucleopeptides to Interact with DNAs" **Interface Focus**, 2017, 7, 20160116.
7. Yamagata, N.; Chen, X. Y.; Zhou, J.; Li, J.; Du, X. W., Xu, B.\* "Enzyme-instructed self-assembly of small hexapeptides based on an immunoreceptor tyrosine-based inhibitory motif (ITIM)" **Org. Biomole. Chem.**, 2017, 15, 5689-5692.
8. Wang, H. M.; Feng, Z. Q. Q.; Lu, A.; Jiang, Y. J.; Wu, H.; Xu, B.\* "Instant Hydrogelation Inspired by Inflammasomes" **Angew. Chem. Int. Ed.** 2017, 56, 7579-7583.
9. Wang, H. M.; Feng, Z. Q. Q.; Xu, B.\* "Bioinspired self-assembly of small molecules in cell milieu" **Chem. Soc. Rev.**, 2017, 46, 2421-2436.
10. Zhou, J.; Li, J.; Du, X. W.; Xu, B.\* "Supramolecular Biofunctional Materials" **Biomaterials**, 2017, 129, 1-27.
11. Feng, Z. Q. Q.; Wang, H. M.; Zhou, R.; Li, J.; and Xu, B.\* "Enzyme-Instructed Assembly and Disassembly Processes for Targeting Down-Regulation in Cancer Cells" **J. Am. Chem. Soc.** 2017, 139, 3950-3953.
12. Li, J.; Shi, J. F.; Medina, J. E.; Zhou, J.; Du, X. W.; Wang, H. W.; Yang, C. H.; Li, J. F.; Yang, Z. M.; Dinulescu, D. M.;\* Xu, B.\* "Selectively Inducing Cancer Cell Death by Intracellular Enzyme-Instructed Self-Assembly (EISA) of Dipeptide Derivative" **Adv. Healthcare Mater.**, 2017, 6, 1601400.
13. Zhou, N.; Cao, X. Y.; Du, X. W.; Wang, H. M.; Wang, M.; Liu, S.; Nguyen, K.; Schmidt-Rohr, K.; Xu, Q. B.; Liang, G. L.; Xu, B.\* "Hyper-Crosslinkers Impart Dual Responsive Polymeric Nanogels with Unusual Volume Change" **Angew. Chem. Int. Ed.** 2017, 56, 2623-2627.
14. Yang, C. H.; Ren, C. H.; Zhou, J.; Liu, J. J.; Zhang, Y.; Huang, F.; Ding, D.; Xu, B.\*; Liu, J. F.\* "Dual Fluorescent-Nuclear and Self-Assembling Vancomycin for *in vivo* Imaging of Bacterial Infections" **Angew. Chem. Int. Ed.** 2017, 56, 2356-2360.
15. Du, X. W.; Zhou, J.; Wang, H. M.; Shi, J. F.; Kuang, Y.; Zeng, W.; Yang, Z. M.; Xu, B.\* "In Situ Generated D-Peptidic Nanofibrils as Multifaceted Apoptotic Inducers to Target Cancer Cells" **Cell Death & Diseases**, 2017, 8, e2614.
16. Li, J.; Du, X. W.; Hashim, S.; Shy, A.; Xu, B.\* "Aromatic-Aromatic Interactions Enable  $\alpha$ -Helix to  $\beta$ -Sheet Transition of Peptides to Form Supramolecular Hydrogels" **J. Am. Chem. Soc.** 2017, 139, 71-74.
17. Du, X. W.; Zhou, J.; Wang, J. Q.; Zhou, R.; Xu, B.\* "Chirality Controls Reaction-Diffusion of Nanoparticles for Inhibiting Cancer Cells" **ChemNanoMat**, 2017, 3, 17-21.

18. Zhou, J.; Du, X. W.; Wang, J. Q.; Yamagata, N.; Xu, B.\* "Enzyme-Instructed Self-Assembly of Peptides Containing Phosphoserine to Form Supramolecular Hydrogels as Potential Soft Biomaterials" *Frontiers Chem. Sci. & Eng.*, 2017, doi:10.1007/s11705-017-1613-7.

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19. Wang, H. M.; Feng, Z. Q. Q.; Wang, Y. Z.; Zhou, R.; Yang, Z. M.; Xu, B.\* "Integrating Enzymatic Self-Assembly and Mitochondria Targeting for Selectively Killing Cancer Cells without Acquired Drug Resistance" *J. Am. Chem. Soc.*, 2016, 138, 16046–16055.
20. Haburcak, R.; Shi, J. F.; Du, X. W.; Yuan, D.; Xu, B.\* "Ligand-Receptor Interaction Modulates the Energy Landscape of Enzyme-Instructed Self-Assembly of Small Molecules" *J. Am. Chem. Soc.*, 2016, 138, 15397–15404.
21. Wang, H. M.; Feng, Z. Q. Q.; Wu, D. D.; Rigney, M.; Zhou, J.; Jiang, Y. J.; Xu, B.\* "Enzyme-Regulated Supramolecular Assemblies of Cholesterol Conjugates against Drug-Resistant Ovarian Cancer Cells" *J. Am. Chem. Soc.*, 2016, 138, 10758–10761.
22. Yuan, D.; Xu, B.\* "Heterotypic Supramolecular Hydrogels" *J. Mater. Chem. B.*, 2016, 4, 5638-5649.
23. Zhou, J.; O'Keeffe, M.; Liao, G. X.; Zhao, F.; Terhorst, C.; Xu, B.\* "Design and Synthesis of Nanofibers of Self-assembled *de novo* Glycoconjugates towards Mucosal Lining Restoration and Anti-Inflammatory Drug Delivery" *Tetrahedron* 2016, 72, 6078-6083.
24. Zhou, J.; Du, X. W.; Berciu, C.; He, H. J.; Shi, J. F.; Nicastro, D.; Xu, B.\* "Enzyme-Instructed Self-Assembly for Spatiotemporal Profiling of the Activities of Alkaline Phosphatases of Live Cells" *Chem*, 2016, 1, 246-263.
25. Wang, H. M.; Feng, Z. Q. Q.; Xu, B.\* "D-Amino acid-Containing Supramolecular Nanofibers for Potential Cancer Therapeutics", *Adv. Drug. Delivery Rev.*, 2016, in press.
26. Feng, Z. Q. Q.; Xu, B.\* "Inspiration from the mirror: D-amino acids containing peptides in biomedical approaches" *BioMolecular Concepts*, 2016, 7, 179-87.
27. Zhou, R.; Kuang, Y.; Zhou, J.; Du, X. W.; Li, J.; Shi, J. F.; Haburcak, R.; Xu, B.\* "Nanonets Collect Cancer Secretome from Pericellular Space" *PLoS One*, 2016, 11: e0154126.
28. Feng, Z. Q. Q.; Wang, H. W.; Du, X. W.; Shi, J. F.; Li, J.; Xu, B.\* "Minimal C-Terminal Modification Boosts Peptide Self-Assembling Ability for Necroptosis of Cancer Cells" *Chem. Commun.* 2016, 52, 6332-6335.
29. Zhou, J.; Du, X. W.; Xu, B.\* "Regulating the Rate of Molecular Self-Assembly for Targeting Cancer Cells" *Angew. Chem. Int. Ed.*, 2016, 55, 5770-5775.
30. Zhou, J.; Du, X. W.; Yamagata, N.; Xu, B.\* "Enzyme-Instructed Self-Assembly of Small D-Peptides as a Multiple-Step Process for Selectively Killing Cancer Cells" *J. Am. Chem. Soc.* 2016, 138, 3813-3823.
31. Yuan, D.; Shi, J. F.; Du, X. W.; Huang, Y. B.; Gao, Y.; Baoum, A. A.; Xu, B.\* "Enzyme-instructed assembly of the core of yeast prion Sup35 to form supramolecular hydrogels", *J. Mater. Chem. B.* 2016, 4, 1318-1323.

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32. Du, X. W.; Zhou, J.; Shi, J. F.; Xu, B.\* "Supramolecular Hydrogelators and Hydrogels: From Soft Matter to Molecular Biomaterials" *Chem. Rev.*, 2015, 115, 13165-13307.

33. Shi, J. F.; Yuan, D.; Haburcak, R.; Zhang, Q.; Zhao, C.; Zhang, X. X.; Xu, B.\* "Enzymatic Dissolution of Biocomposite Solids Consisting of Phosphopeptides to Form Supramolecular Hydrogels" **Chem. Eur. J.** 2015, 21, 18047-18051.
34. Shi, J. F.; Xu, B.\* "Nanoscale Assemblies of Small Molecule Control the Fate of Cells" **Nano Today**, 2015, 10, 615-630.
35. Li, J.; Kuang, Y.; Shi, J. F.; Zhou, J.; Medina, J. E.; Zhou, R.; Yuan, D.; Yang, C. H.; Wang, H. M.; Yang, Z. M.; Liu, J. F.; Dinulescu, D. M.\* and Xu, B.\* "Enzyme-Instructed Intracellular Molecular Self-assembly to Boost Activity of Cisplatin against Drug-Resistant Ovarian Cancer Cells" **Angew. Chem. Intl. Ed.**, 2015, 54, 13307-13311.
36. Shi, J. F.; Du, X. W.; Yuan, D.; Haburcak, R.; Zhou, N.; Xu, B.\* "Supramolecular Detoxification of Neurotoxic Nanofibrils of Small Molecules via Morphological Switch" **Bioconjugate Chem.** 2015, 26, 1879-1883.
37. Yuan, D.; Shi, J. F.; Du, X. W.; Zhou, N.; Xu, B.\* "Supramolecular Glycosylation Accelerates Proteolytic Degradation of Peptide Nanofibrils" **J. Am. Chem. Soc.**, 2015, 137, 10092-10095.
38. Zhou, J.; Du, X. W.; Li, J.; Yamagata, N.; Xu, B.\* "Taurine Boosts Cellular Uptake of Small D-peptides for Enzyme-Instructed Intracellular Molecular Self-assembly", **J. Am. Chem. Soc.** 2015, 137, 10040-10043.
39. Zhou, J.; Xu, B.\* "Enzyme-Instructed Self-Assembly (EISA): A Multi-Step Process for Potential Cancer Therapy" **Bioconjugate Chem.**, 2015, 26, 987-999.
40. Yuan, D.; Du, X. W.; Shi, J. F.; Zhou, N.; Zhou, J.; Xu, B.\* "Mixing Biomimetic Heterodimers of Nucleopeptides to Generate Biocompatible and Biostable Supramolecular Hydrogels" **Angew. Chem. Intl. Ed.**, 2015, 54, 5705-5708.
41. Zhou, J.; Du, X. W.; Xu, B.\* "Prion-like nanofibrils of small molecules (PriSM): a new frontier at the intersection of supramolecular chemistry and cell biology", **Prion**, 2015, 9, 110-118.
42. Shi, J. F.; Du, X. W.; Yuan, D.; Haburcak, R.; Wu, D. D.; Zhou, N.; Xu, B.\* "Enzyme transformation to modulate the ligand-receptor interactions between small molecules" **Chem. Commun.** 2015, 51, 4899-4901.
43. Zhang, Y.; Zhou, N.; Shi, J. F.; Pochapsky, S. S.; Pochapsky, S. S.; Zhang, B.; Zhang, X. X.; Xu, B.\* "Unfolding a molecular trefoil derived from a zwitterionic metallopeptide to form self-assembled nanostructures" **Nat. Commun.** 2015, 6, 6165.
44. Yuan, D.; Du, X. W.; Shi, J. F.; Zhou, N.; Baoum, A. A.; Footy, K. O. A.; Badahdah, K. O.; Xu, B.\* "Synthesis and evaluation of the biostability and cell compatibility of novel conjugates of nucleobase, peptidic epitope, and saccharid" **Beilstein J. Org. Chem.** 2015, 11, 1352-1359.
45. Du, X. W.; Zhou, J.; Xu, B.\* "Ectoenzyme Switches the Surface of Magnetic Nanoparticles for Selective Binding of Cancer Cells" **J. Colloid. Interface Sci.**, 2015, 447, 273-7.
46. Wu, D. D.; Du, X. W.; Shi, J. F.; Zhou, J.; Zhou, N.; Xu, B.\* "The First CD73-Instructed Supramolecular Hydrogel" **J. Colloid. Interface Sci.**, 2015, 447, 269-72.
47. Shi, J. F.; Du, X. W.; Huang, Y. B.; Zhou, J.; Yuan, D.; Wu, D. D.; Zhang, Y.; Haburcak, R.; Epstein, I. R.\*; Xu, B.\* "Ligand-Receptor Interaction Catalyzes the Aggregation of Small Molecules to Induce Cell Necroptosis" **J. Am. Chem. Soc.** 2015, 137, 26-29.

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48. Du, X. W.; Zhou, J.; Wu, L. H.; Sun, S. H.; Xu, B.\* “Enzymatic Transformation of Phosphate Decorated Magnetic Nanoparticles for Selectively Sorting and Inhibiting Cancer Cells” *Bioconjugate Chem.*, 2014, 25, 2129–2133.
49. Zhao, F.; Li, J.; Zhou, N.; Sakai, J.; Gao, Y.; Shi, J. F.; Goldman, B.; Browdy, H. M.; Luo, H. R.; Xu, B.\* “De Novo Chemoattractants Form Supramolecular Hydrogels for Immunomodulating Neutrophils In Vivo”, *Bioconjugate Chem.*, 2014, 25, 2116-2122.
50. Yuan, D.; Du, X. W.; Shi, J. F.; Ning Zhou, N.; Baoum, A. A.; Xu, B.\* “Synthesis of novel conjugates of saccharide, amino acids, nucleobase and the evaluation of their cell compatibility” *Beilstein J. Org. Chem.* 2014, 10, 2406-2413.
51. Shi, J. F.; Du, X. W.; Yuan, D.; Zhou, J.; Zhou, N.; Huang, Y. B.; Xu, B.\* “D-Amino acids Modulate the Cellular Response of Enzymatic-Instructed Supramolecular Nanofibers of Small Peptides” *Biomacromolecules*, 2014, 15, 3559.
52. Kuang, Y.; Long, M. J. C.; Zhou, J.; Shi, J. F.; Gao, Y.; Xu, C.; Hedstrom, L.; Xu, B.\* “Prion-like Nanofibrils of Small Molecules (PriSM) Selectively Inhibit Cancer Cells by Impeding Cytoskeleton Dynamics” *J. Biol. Chem.* 2014, 289, 29208.
53. Zhao, F.; Heesters, B. A.; Chiu, I.; Gao, Y.; Shi, J. F.; Zhou, N.; Carroll, M. C.; Xu, B.\* “L-Rhamnose-containing supramolecular nanofibrils as a potential immunosuppressive material” *Org. Biomol. Chem.*, 2014, 12, 6816-6819.
54. Yuan, D.; Zhou, R.; Shi, J. F.; Du, X. W.; Li, X. M.; Xu, B.\* “Enzyme-instructed self-assembly of the hydrogelators consisting of nucleobase, amino acids, and saccharide” *RSC Advances*, 2014, 4, 26487-26490.
55. Du, X. W.; Zhou, J.; Guvench, O.; Sangiorgi, F. O.; Li, X. M.; Zhou, N.; Xu, B.\* “Supramolecular Assemblies of A Conjugate of Nucleobase, Amino Acids, and Saccharide Act as Agonists for Proliferation of Embryonic Stem Cells and Development of Zygotes” *Bioconjugate Chem.*, 2014, 25, 1031-1035.
56. Zhang, Y.; Zhou, N.; Li, N.; Sun, M.; Kim, D.; Fraden, S. \*; Epstein, I. E. \*; Xu, B.\* “Giant Volume Change of Active Gels under Continuous Flow” *J. Am. Chem. Soc.*, 2014, 136, 7341-7346.
57. Wu, D. D.\*; Du, X. W.; Shi, J. F.; Zhou, J.; Xu, B.\* “Supramolecular Nanofibers/Hydrogels of the Conjugates of Nu-cleobase, Saccharide, and Amino Acids” *Chinese J. Chem.*, 2014, 32, 313-318.
58. Zhou, R.; Xu, B.\* “Insight of the Cytotoxicity of the Aggregates of Peptides or Aberrant Proteins: A Meta-Analysis” *PLoS One*, 2014, 9, e95759.
59. Kuang, Y.; Shi, J. F.; Li, J.; Yuan, D.; Alberti, K. A.; Xu, Q. B.; Xu, B.\* “Pericellular Hydrogel/Nanonets Inhibit Cancer Cells” *Angew. Chem. Intl. Ed.*, 2014, 53, 8104-8107.
60. Kuang, Y.; Du, X. W.; Zhou, J.; Xu, B.\* “Supramolecular nanofibrils inhibit cancer progression in vitro and in vivo” *Adv. Healthcare Mater.* 2014, 3, 1217-1221.
61. Du, X. W.; Zhou, J.; Xu, B.\* “Supramolecular Hydrogels Made of the Basic Biological Building Blocks” *Chem. Asian J.*, 2014, 9, 1446-1472.
62. Zhou, J.; Du, X. W.; Gao, Y.; Shi, J. F.; Xu, B.\* “Aromatic-Aromatic Interactions Enhance Interfiber Contacts for Enzymatic Formation of A Spontaneously Aligned Supramolecular Hydrogel” *J. Am. Chem. Soc.*, 2014, 136, 2970-2973.

63. Kuang, Y.; Gao, Y.; Shi, J. F.; Li, J.; Xu, B.\* "The first supramolecular peptidic hydrogelator containing taurine" **Chem. Commun.**, 2014, 50, 2772-2774.
64. Wu, D. D.; Zhou, J.; Shi, J. F.; Du, X. W.; Xu, B.\* "A naphthalene-containing amino acid enables hydrogelation of a conjugate of nucleobase-saccharide-amino acids" **Chem. Commun.** 2014, 50, 1992-1994.

## 2013

65. Gao, Y.; Kuang, Y.; Du, X. W.; Zhou, J.; Chandran, P.; Horkay, F.; Xu, B.\* "Imaging Self-assembly Dependent Spatial Distribution of Small Molecules in Cellular Environment" **Langmuir**, 2013, 29, 15191-15200.
66. Gao, Y.; Berciu, C.; Kuang, Y.; Shi, J. F.; Nicastro, D.; Xu, B.\* "Probing Nanoscale Self-assembly of Non-fluorescent Small Molecules inside Live Mammalian Cells" **ACS Nano**, 2013, 7, 9055-9063.
67. Zhang, Y.; Zhou, N.; Akella, S.; Kuang, Y.; Kim, D.; Schwartz, A.; Bezpalko, M.; Foxman, B. M.; Fraden, S.; Epstein, I. R.\*; Xu, B.\* "Active Cross-linkers that Lead to Active Gels" **Angew. Chem. Int. Ed.** 2013, 52, 11494-11498.
68. Li, J. Y.; Gao, Y.; Kuang, Y.; Shi, J. F.; Du, X. W.; Zhou, J.; Wang, H. M.; Yang, Z. M.; Xu, B.\* "Dephosphorylation of D-Peptide Derivatives to Form Biofunctional, Supramolecular Nanofibers/Hydrogels and Their Potential Applications for Intracellular Imaging and Intratumoral Chemotherapy" **J. Am. Chem. Soc.**, 2013, 135, 9907-9914.
69. Zhang, Y.; Zhou, R.; Shi, J. F.; Zhou, N.; Epstein, I. R.; Xu, B.\* "Post-Self-Assembly Cross-Linking to Integrate Molecular Nanofibers with Copolymers in Oscillatory Hydrogels" **J. Phys. Chem. B.** 2013, 117, 6566-6573.
70. Kuang, Y.; Xu, B.\* "Nanofibers of Small Hydrophobic Molecules Disrupt Dynamics of Microtubules and Selectively Inhibit Glioblastoma Cells" **Angew. Chem. Int. Ed.** 2013, 52, 6944-6948.
71. Li, J. Y.; Li, X. M.; Kuang, Y.; Gao, Y.; Du, X. W.; Shi, J. F.; Xu, B.\* "Self-delivery Multifunctional Anti-HIV Hydrogels for Sustained Release" **Adv. Healthcare Mater.**, 2013, 2, 1586-1590.
72. Huang, Y. B.; Shi, J. F.; Yuan, D.; Zhou, N.; Xu, B.\* "Length-Dependent Proteolytic Cleavage of Short Oligopeptides Catalyzed by Matrix Metalloprotease-9" **Biopolymers: Peptide Sci.**, 2013, 6, 790-795.
73. Li, J. Y.; Kuang, Y.; Shi, J. F.; Gao, Y.; Zhou, J.; Xu, B.\* "The Conjugation of Non-steroidal Anti-inflammatory Drugs (NSAID) to Small Peptides for Generating Multifunctional Supramolecular Nanofibers/Hydrogels" **Beilstein J. Org. Chem.**, 2013, 9, 908-917.
74. Kuang, Y.; Yuan, D.; Zhang, Y.; Kao, A.; Du, X. W.; Xu, B.\* "Interactions between cellular proteins and morphologically different nanoscale aggregates of small molecules" **RSC Advances**, 2013, 3, 7704-7707.
75. Zhang, Y.; Zhang, B.; Kuang, Y.; Gao, Y.; Shi, J.; Zhang, X. X.; Xu, B.\* "A Redox Responsive, Fluorescent Supramolecular Metallohydrogel Consists of Nanofibers with Single-Molecule Width" **J. Am. Chem. Soc.**, 2013, 135, 5008-5011.
76. Li, J. Y.; Kuang, Y.; Gao, Y.; Du, X. W.; Shi, J. F.; Xu, B.\* "D-Amino Acids Boost the Selectivity and Confer Supramolecular Hydrogels of a Non-steroidal Anti-inflammatory Drug (NSAID)" **J. Am. Chem. Soc.**, 2013, 135, 542-545.

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77. Li, X. M.; Du, X. W.; Li, J. Y.; Gao, Y.; Pan, Y.; Zhou, N.; Xu, B.\* "Introducing D-Amino Acid or Simple Glycoside into Small Peptides to Enable Supramolecular Hydrogelators to Resist Proteolysis" *Langmuir*, 2012, 37, 13512-13517.
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83. Zhang, Y.; Li, N.; Delgado, J.; Zhou, N.; Yoshida, R.; Fraden, S.; Epstein, I. R.\*; Xu, B.\* "Structural modulation of self-oscillating gels: Changing the proximity of the catalyst to the polymer backbone to tailor chemomechanical oscillation" *Soft Matter*, 2012, 8, 7056-7061.
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220. Xu, B.; Chen, D.; Tang, W.; Yu, K.; Zhou, Z. "Synthesis and Structure of Pyrazine Bridged Heteronuclear Compound" **Gaodeng Xuexiao Huaxue Xuebao**, 1991, 12, 13-15.
221. Yan, A.; Xu, B.\* "Adsorption of Water on CaNaY Zeolites--Tension of Theory of Micropore Volume Filling" **Huaxue Xuebao**, 1990, 48, 216.

#### Review/Perspective

222. Xu, B.\* "Internal Construction" *Nat. Chem.* 2010, 2, 13-14.
223. Xu, B.\* "Gels as Functional Nanomaterials for Biology and Medicine" *Langmuir* 2009, 25, 8375-8377.
224. Xu, B.\* "Nanofabrication Towards Biomedical Applications", *Adv. Mater.* 2006, 18, 375-376.

#### Invited Talks at National and International Meetings

1. "Supramolecular Catalysis and Dynamic Assemblies in Cell Milieu" CHEM2NATURE Workshop, Daejeon, Korea, Oct., 2017
2. "Supramolecular Catalysis and Dynamic Assemblies for Medicine" ChinaNANO 2017, Beijing, China, Aug., 2017
3. "Enzyme-Instructed Peptidic Nanostructures for Selectively Inhibiting Cancer Cells" ACS Fall meeting, Washington DC, USA, Aug., 2017
4. "Enzyme-Instructed Nanostructures for Selectively Inhibiting Cancer Cells without Acquired Drug Resistance" 2<sup>nd</sup> CASNN Annual Meeting, Soochow, China, July, 2017
5. "Enzyme-Instructed Nanostructures for Selectively Inhibiting Cancer Cells without Acquired Drug Resistance" 12<sup>th</sup> Sino-US Nano Forum, Beijing, China, May, 2017
6. "Heterotypic supramolecular assemblies of short peptidic derivatives" ACS Spring meeting, San Francisco, USA, Mar, 2017
7. "Supramolecular hydrogelators and hydrogels: from Soft Matter to Molecular Biomaterials" ACS Middle Atlantic Regional Meeting, New York, June, 2016
8. "Enzyme-instructed self-assembly (EISA) for selectively killing cancer cells" International Symposium on Theranostic Nanomedicine, Taiwan, Mar, 2016



9. "Enzyme-instructed assembly to form nanostructures for selectively inhibiting cancer cells" ACS Spring meeting, San Diego, USA, Mar, **2016**
10. "Enzymatic transformation and self-assembly of peptides for future cancer therapy" Pacific Chem 2015, Honolulu, USA, Dec. **2015**
11. "Enzyme-instructed self-assembly in nanoscale for future cancer therapy" 4<sup>th</sup> Nanotoday Conference, Dubai, Dec. **2015**
12. "Nanoscale molecular assemblies in cellular environment: From molecules to processes" POLARIS Conference, Guimarães, Portugal, Jun. **2015**
13. "Enzymatic transformation and self-assembly of peptides for future cancer therapy" ACS Spring meeting, Denver, USA, Mar. **2015**
14. "Small Molecule Self-Assembly for Controlling the Fate of Cells" 3rd International Supramolecular System Symposium (SSS2014), Changchun, China, Aug. **2014**
15. "Enzyme-Instructed Supramolecular Polymers for Controlling the Fate of Cells" ACS Fall meeting, San Francisco, USA, Aug. **2014**
16. "Enzyme-Instructed Formation of Molecular Nanofibers for Mucosal Lining Restoration and Anti-inflammatory Drug Delivery" 2014 Innovations Symposium, Kenneth Rainin Foundation, San Francisco, USA, July **2014**
17. "Molecular aggregates in cellular environment" 4<sup>th</sup> International Colloids Conference, Madrid, Spain, Jun. **2014**
18. "Biomimetic of Cells: From Self-oscillation to Self-organization" at the 14<sup>th</sup> International Symposium on Biomimetic Materials Processing, Takayama, Japan, Jan. **2014**
19. "Self-assembly of Small Molecules in Cellular Environment" ACS Spring meeting, New Orleans, Apr. **2013**
20. "Formation of Active Soft Matter Via Molecular Self-Assembly" Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2013**
21. "Biological Functions and Applications of Supramolecular Self-Assembly in Cellular Environment" at the 13<sup>th</sup> International Symposium on Biomimetic Materials Processing, Takayama, Japan, Jan. **2013**
22. "Biological Functions of Aggregates of Small Molecules" International Symposium on Biofunctional Chemistry (ISBC2012) Tokyo, Japan, Nov. **2012**.
23. "Functional Mimic of Biomacromolecules by Self-assembly of the Conjugates of Nucleobase, Amino Acid, and Glycosides" Materials Research Society Fall Meeting, Boston, USA, Nov. **2012**
24. "Small Peptides for Soft Nanomaterials" Nanopeptide 2012 conference, Manchester, UK, Nov. **2012**
25. "Formation, Functions, and Applications of Aggregates of Small Peptide Derivatives" Sixth Peptide Engineering Meeting, Atlanta, USA, Oct. **2012**.
26. "Integrating Enzymatic Reactions and Molecular Self-Assembly for Approaches and Applications of Supramolecular Hydrogels" International Union of Materials Research Societies (IUMRS)-International Conference on Electronic Materials 2012, Yokohama, Japan, Sept. **2012**
27. "Magnetic Nanoparticles for Direct Protein Sorting inside Live Cells" Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2012**

28. "Supramolecular Hydrogelators for Soft Nanomaterials "at the 12<sup>th</sup> International Symposium on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2012**
29. "Enzyme-instructed formation of molecular nanofibers/hydrogel for Biomedicine" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
30. "Formation of Nanofibers of Small Molecules inside Cells" at the Molecular Materials Meeting (M3), Singapore, Jan. **2011**
31. "Formation of Nanofibers and Hydrogels of Small Molecules inside Cells" at Indo-US Meeting/Workshop on Self-Assembled Fibrillar Gels, Trivandrum, India, Jan. **2011**
32. "Exploring Synthetic Biofunctional Nanostructure inside Cells" at the 11<sup>th</sup> International Symposium on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2011**
33. "Progress and challenges of biological applications of multifunctional nanoparticles" Challenges in Inorganic and Materials Chemistry-the International Symposia on Advancing the Chemical Sciences (ISACS-3), Hong Kong, Jul. **2010**
34. "Synthesis and Applications of Multifunctional Magnetic Nanoparticles" Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2010**
35. "Enzyme-instructed Molecular Self-assembly to Form Nanofibers and Hydrogels for Biomedical Applications" at the 10<sup>th</sup> International Symposium on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2010**
36. "Enzymatic hydrogelation of small molecules and applications in biomedicine" Polymeric and self-assembly hydrogels, Manchester, UK, Sept, **2009**.
37. "Multifunctional Magnetic Nanoparticles: Design, Synthesis, and Biomedical Applications" ACS fall meeting, Washington D. C., August **2009**
38. "Enzyme-Instructed Formation of Nanofibers and Hydrogels for Biomedicine " 42<sup>nd</sup> IUPAC Congress, August **2009**
39. "Multifunctional Magnetic Nanoparticles: Design, Synthesis, and Biomedical Applications" The 1<sup>ST</sup> Nano Today Conference, Singapore, August **2009**
40. "Enzymatic formation of nanofibers and hydrogels for biomedicine" 4<sup>th</sup> Sino-US Nano Meeting, China, July **2009**
41. "Self-assembled hybrid nanofibers confer a supramolecular magnetorheological material" Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2009**
42. "Bioinspired Multiphase Materials: Supramolecular Hydrogels to Mimic Enzyme and Bioluminescence" 237<sup>th</sup> ACS National Meeting, Utah, Mar, **2009**.
43. "Multifunctional Magnetic Nanoparticles" 7<sup>th</sup> Global COE special lecture, Kyushu University, 18 Dec, **2008**.
44. "Enzyme Triggers Self-assembly and Hydrogelation for Controlling the Fate of Cells" International Symposium on Molecular and System Life Sciences, 10-11 Dec **2008**, RIKEN Center for Developmental Biology, Kobe, Japan
45. "Constructing Novel Nanostructures for Anticancer Therapy" 236<sup>th</sup> ACS National Meeting, Philadelphia, Aug, **2008**.
46. "Design and Applications of Bionanomaterials" at the 8<sup>th</sup> International Symposium on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2008**
47. "Development of Supramolecular Hydrogel as Novel Biomaterials" at the UK-Hong Kong Frontiers of Science Symposium, Hong Kong, Jan. **2008**

48. "Enzymatic Formation of Self-Assembled Nanofibers and Their Biological Applications as Supramolecular Hydrogels" Xiangshan Conference, Beijing, Oct. **2007**.
49. "Synthesis and Applications of Biofunctional Nanostructures" Materials Today Asia, Beijing, Sept. **2007**
50. "Synthesis and Applications of Multifunctional Nanoparticles", Advanced Materials Workshop III, Dalian, June, **2007**
51. "Enzymatic Formation of Self-Assembled Nanofibers for Making Biomaterials" 2<sup>nd</sup> Molecular Biomimetics and Bionanotechnology Workshop, Istanbul, Turkey, May, **2007**.
52. "Enzymatic Supramolecular Hydrogelation for Making Biomaterials", Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2007**
53. "Enzymatic Supramolecular Hydrogelation for Making Nanobiomaterials" (keynote lecture) at 87<sup>th</sup> Annual Meeting of The Chemical Society of Japan, Osaka, Japan, Mar. **2007**
54. "Supramolecular Hydrogels as Novel Biomaterials: Design, Synthesis, and Applications" at the 7<sup>th</sup> International Symposium on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2007**
55. "Magnetic Nanoparticle Complexes for Pathogen Detection and Toxin Removal" at the International Symposium on Flow Dynamics, Sendai, Japan, 8<sup>th</sup>, Nov. **2006**
56. "Biofunctional Nanoparticles and Nanofibers: Synthesis And Applications", Forum on Nanoscience and Biomedicine, Beijing, China, 11<sup>th</sup> Oct. **2006**
57. "Enzymatic Approaches to Form Supramolecular Nanofibers for Hydrogels" at the 6<sup>th</sup> International Symposium on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2006**
58. "Biofunctional Magnetic Nanoparticles: Synthesis And Applications" at the 11<sup>th</sup> Asian Chemical Congress, Seoul, Korea, Aug. **2005**
59. "Explore ligand-receptor interactions in supramolecular hydrogels" at International Polymer Conference 2005, Fukoka, Japan, Jul. **2005**
60. "Biofunctional Nanoparticles And Nanofibers: Synthesis And Applications" at the 5<sup>th</sup> International Conference on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2005**
61. "Biomimetic Supramolecular Hydrogels and Their Applications" at the 4<sup>th</sup> International Conference on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2004**
62. "Solventless Polymerization at the Gas/Solid Interface to Form Polymeric Thin Films and Its Applications" at Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2003**.
63. "Polyvalency/Multivalency—Biomimetic Approach to Inhibit and Detect Bacteria" at the 3<sup>rd</sup> International Conference on Biomimetic Materials Processing, Nagoya, Japan, Jan. **2003**
64. "Solventless Polymerization at the Gas/Solid Interface to Form Polymeric Thin Films" at the 2<sup>nd</sup> International Conference on Biomimetic Materials Processing, Nagoya, Japan, Feb. **2002**
65. "Design and Synthesis of Novel Bowlic Liquid Crystals" at the 16<sup>th</sup> International Conference on Liquid Crystals, Kent, USA, Jul. **1996**

**Other conference talks and presentations**

1. Du, X. W.; Li, J. F.; Gao, Y.; Kuang, Y.; Xu, B.\* "Enzymatic Formation of Molecular Hydrogels of Adenosine Nucleoside" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
2. Kuang, Y.; Liang, G. L.; Gao, Y.; Zhao, F.; Xu, B.\* "Investigation of Cytotoxicity of Di-phenylalanine Based Hydrogelators" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
3. Li, J. Y.; Shi, J. F.; Gao, Y.; Kuang, Y.; Xu, B.\* "Non-steroidal Anti-inflammatory Drugs (NSAID) Containing Multifunctional Supramolecular Hydrogels" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
4. Pan, Y.; Shi, J. F.; Xu, B.\* "Supramolecular hydrogel of a versatile ligand of metal ions" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
5. Zhang, Y.; Li, N.; Delgado J.; Fraden, S.; Epstein, I. R.; Xu, B.\* "Belousov-Zhabotinsky Reaction Induced Autonomous Self-oscillatory Hydrogels Made by Supramolecular Nanofibers" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
6. Gao, Y.; Kuang, Y.; Shi, J. F.; Xu, B.\* "Enzymatic Formation of Fluorescent Supramolecular Hydrogels" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
7. Li, X. M.; Kuang, Y.; Lin, H.-C.; Gao, Y.; Shi, J. F.; Xu, B.\* "Supramolecular Nanofibers and Hydrogels of Nucleopeptides Resistant to Enzyme Digestion" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
8. Shi, J. F.; Gao, Y.; Zhang, Y.; Pan, Y.; Xu, B.\* "Calcium Ions to Crosslink Supramolecular Nanofibers for Tuning the Elasticity of Hydrogels over Orders of Magnitude" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
9. Zhao, F.; Weitzel, C. S.; Lovett, S. T.; Xu, B.\* "Esterase-instructed Formation of Molecular Hydrogel and beta-galactosidase-instructed Intracellular Hydrogelation" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
10. Zhou, N.; Yang, Z. M.; Liang, G. L.; Xu, B.\* "Rational Design, Self-Assembly, and Antibacterial Activity of Molecular Hydrogelators Derived from Kanamycin" Materials Research Society Fall Meeting, Boston, USA, Nov. **2011**
11. Gao, Y.; Kuang, Y.; Berciu, C.; Nicastro, D.; Xu, B.\* "Investigating the Intracellular Self-Assembly of Small Molecules" Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2011**
12. Zhang, Y.; Delgado, J.; Balaz, A.; Epstein, I. R.; Xu, B.\* "Design and Synthesis of Self-oscillatory Hydrogels" Materials Research Society Spring Meeting, San Francisco, USA, Apr. **2011**
13. Gao, Y.; Kuang, Y.; Xu, B.\* "The Localization of Self-Assembled Molecular Nanofiber on Endoplasmic Reticulum inside Live Cells" ACS National Meeting, Boston, Aug. **2010**
14. Gao, Y.; Kuang, Y.; Yang, Z. M.; Liang, G. L.; Xu, B.\* "Using Enzyme-Triggered Self-Assembly and Hydrogelation to Control the Fate of Cells" 82nd ACS Colloid And Surface Science Symposium, Raleigh, Jun, **2008**.
15. Gao, J. H.; Xu, B.\* "Design and Synthesis of Multifunctional Nanoparticles as Potential MRI Contrast and Potent Anticancer Agents" 82nd ACS Colloid And Surface Science Symposium, Raleigh, Jun, **2008**.
16. Yang, Z. M.; Xu, B.\* "Enzymatic Formation of Supramolecular Polymeric Nanofibers and Subsequent Hydrogelation" 231<sup>st</sup> ACS National Meeting, Atlanta, Mar. **2006**.
17. Gao, J. H.; Yang, Z. M.; Xu, K. M.; Gu, H. W.; Xu, B.\* "Development of Biofunctional Magnetic Nanoparticles for Pathogen Detection and Anticancer Therapy" MRS Fall Meeting, Boston, USA, Nov. **2005**.

18. Liu, H. Y.; Gao, J. H.; Chang, C. K.\*; Xu, B.\* “Design and Synthesis of Perfluorinated Corroles and Porphine Derivatives for n-Channel Organic/Molecular Semiconductors” MRS Fall Meeting, Boston, USA, Nov. **2005**.
19. Yang, C.; Xu, B.\* “Controlling the mechanical properties of polymeric thin films by a binary array of monodispersed polymer nanoparticles” MRS Spring Meeting, San Francisco, USA, Apr. **2005**.
20. Wang, L.; Yang, Z. M.; Gu, H. W.; Lai, L. M.; Tang, B. Z.; Xu, B.\* “Interaction between vancomycin and the helical polymer bearing D-alanyl-D-alanine pendants” 229<sup>th</sup> ACS National Meeting, San Diego, Mar. **2005**.
21. Yang, C.; Xu, B.\* “Controlling the mechanical properties of polymeric thin films by a binary array of monodispersed polymer nanoparticles” 229<sup>th</sup> ACS National Meeting, San Diego, Mar. **2005**.
22. Yang, Z. M.; Xu, B.\* “Detecting Inhibitors Based on Enzymatic Reaction Controlled Self-Assembly of Amphiphilic Small Molecules” 229<sup>th</sup> ACS National Meeting, San Diego, Mar. **2005**.
23. Lihua Li, L. H.; Ho, P. L.; Xu, B.\* “Synthesis and antibacterial activities of multivalent vancomycins based on 8-hydroxyquinoline platforms” 229<sup>th</sup> ACS National Meeting, San Diego, Mar. **2005**.
24. Gu, H. W.; Zheng, R.; Zhang, X. X.; Xu, B.\* “Facile one-pot synthesis of bimodal nanowires of FePt and ZnS” 228<sup>th</sup> ACS National Meeting, Philadelphia, United States, Aug., **2004**.
25. Gu, H. W.; Zheng, R. K.; Zhang, X. X.; Xu, B.\* “Chemical Synthesis and Surface Modification of Core-Shell Nanoparticles for Biological Applications” MRS Spring Meeting, San Francisco, USA, Apr. **2004**.
26. Gu, H. W.; Yuan, F.; Xu, B.\* “Using Biofunctional Magnetic Nanoparticles (BMNP) to Detect Proteins at Ultra-Low Concentration” MRS Spring Meeting, San Francisco, USA, Apr. **2004**.
27. Gu, H. W.; and Xu, B.\* “Solventless Polymerization to Form Conducting Polymers in Nanochannels” MRS Spring Meeting, San Francisco, USA, Apr. **2004**.
28. Gu, H. W.; Xu, C. J.; Xu, K. M.; Ho, P. L.; Zheng, R. K.; Zhang, X. X.; Xu, B.\* “Applications of Biofunctional Magnetic Nanoparticles” MRS Spring Meeting, San Francisco, USA, Apr. **2004**.
29. Gu, H. W.; Xu, C. J.; Xu, K. M.; Ho, P. L.; Zhong, X. F.; Guo, Z.; Xu, B.. “Biofunctional nanomagnets: Synthesis and Applications” 227<sup>th</sup> ACS National Meeting, Anaheim, United States, Mar., **2004**
30. Li, L. H.; Ho, P. L.; Chang, C. K.; Xu, B.. “Synthesis and antibacterial activities of multivalency vancomycins based on porphyrin platforms” 227<sup>th</sup> ACS National Meeting, Anaheim, United States, Mar., **2004**
31. Zhang, Y.; Xing, B. G.; Ho, P. L.; Gu, H. W.; Yang, Z. M.; Xu, B.\* “Novel Supramolecular Hydrogels Response to A ligand-Receptor Interaction” MRS Fall Meeting, Boston, United States, Dec. **2003**.
32. Gu, H. W.; Zheng, R. K.; Zhang, X. X.; Ho, P. L.; Xu, B.\* “Biofunctional Magnetic Nanoparticles for Pathogen Detection” MRS Fall Meeting, Boston, United States, Dec. **2003**.
33. Gu, H. W.; Ho, P. L.; Tsang, K. W. T.; Yu, C. W.; Xu, B.\* “Design biofunctional magnetic nanoparticles for pathogen detection” 226<sup>th</sup> ACS National Meeting, New York, Sept. **2003**.
34. Xing, B. G.; Yu, C. W.; Chow, K.; Ho, P. L.; Fu, D. G.; Zhang, Y.; Xu, B.\* “Self-assembled vancomycin nanofibers confer antibacterial hydrogels” 225<sup>th</sup> ACS National Meeting, New Orleans, Mar. **2003**.

35. Gu, H. W.; Fu, D. G.; Xu, C. J.; Tang, J.; Xu, B.\* "Solventless polymerization to grow thin films on solid substrates and its applications" 225<sup>th</sup> ACS National Meeting, New Orleans, Mar. **2003**
36. Gu, H. W.; Zheng, R. K.; Rao, J.; Zhang, X.; Fung, K. K.; Xu, B.\* "Chemical synthesis and magnetization measurement of SmCo<sub>5</sub> magnetic nanoparticles" 225<sup>th</sup> ACS National Meeting, New Orleans, Mar. **2003**
37. Fu, D. G.; Gu, H. W.; Xu, B.\* "To grow polymeric chiral surfaces on solid substrates via solventless polymerization" MRS Fall Meeting, Boston, United States, Dec. **2002**.
38. Gu, H. W.; Xu, B.\* "Self-repair (or self-polishing) of polymeric surface during solventless polymerization in confinement" MRS Fall Meeting, Boston, United States, Dec. **2002**
39. Gu, H. W.; Xu, B.\* "Molecules-by-molecule" deposition (MMD) for the formation of polymeric films on the air/water interface" MRS Fall Meeting, Boston, Dec., **2002**.
40. Gu, H. W.; Yao, J. C.; Zheng, R. K.; Zhang, X.; Fong, K. K.; Huang, S.; Wong, C., Y. C.; Xu, B.\* "Chemical Synthesis and Patterning of Narrowly Dispersed SmCo<sub>5</sub> Nanoparticles" 47<sup>th</sup> Conference on Magnetism and Magnetic Materials, Tampa, United State, Nov. **2002**.
41. Xing, B. G.; Choi, M.; Zhou, Z.; Xu, B.\* "Design and synthesis of coordination polymer gels ('metallogeles')" 223<sup>rd</sup> ACS National Meeting, Orlando, Apr. **2002**.
42. Yu, C. W.; Xing, B. G.; Chow, K.; Ho, P. L.; Xu, B.\* "'Metalloantibiotics' with potent activity: cisplatin linked dimers of vancomycin against vancomycin-resistant enterococci (VRE)." 223<sup>rd</sup> ACS National Meeting, Orlando, Apr. **2002**.
43. Xing, B. G.; Choi, M.; Xu, B.\* "A stable 'metallogel' based on a calix[4]arene and its 'uptake' of nonionic organic molecules from the aqueous phase." 223<sup>rd</sup> ACS National Meeting, Orlando, Apr. **2002**.
44. Fu, D. G.; Gu, H. W.; Weng, L.; Du, B.; Tsui, O. K. C.; Xu, B.\* "Solventless polymerization at the gas/solid interface to form polymeric thin films" 223<sup>rd</sup> ACS National Meeting, Orlando, FL, Apr. **2002**.
45. He, J.; Du, B.; Tsui, O. K. C.; Xu, B.\* "'Orthogonal' polymerizations inside ordered hydrogels to generate self-organized nanostructures" 2<sup>nd</sup> International Conference on Biomimetic Materials Processing, Nagoya, Japan, Feb. **2002**.
46. Fu, D. G.; Du, B.; Tsui, O. K. C.; Xu, B.\* "Polymerization at the gas/solid Interface to form polymeric thin films" MRS Fall Meeting, Boston, Nov. **2001**.
47. He, J.; Du, B.; Tsui, O. K. C.; Xu, B.\* "'Orthogonal' polymerizations inside ordered hydrogels to generate self-organized nanostructures" MRS Fall Meeting, Boston, Nov. **2001**.
48. Yu, H.; Pullen, A. E.; Xu, B.; Swager, T. M. "New ion sensors based on conducting calix[4]arenecrown polymers" 222<sup>nd</sup> ACS National Meeting, Chicago, Aug. **2001**
49. Yu, H.; Pullen, A. E.; Xu, B.; Swager, T. M. "Toward new actuating devices: Synthesis and electrochemical studies of poly(11,23-bis([2,2'-bithiophen]-5-yl)-26,28-dimethoxycalix[4]arene-25,27-diol)" 220<sup>th</sup> ACS National Meeting, Washington, DC, Aug. **2000**
50. Whitesides, G. M.; Bowden, N.; Choi, I.; Tien, J.; Huck, W.; Duffey, D.; Xu, B.; Oliver, S. "Meso-scale self-assembly" 215<sup>th</sup> ACS National Meeting, Dallas, United States, Mar. **1998**
51. Swager, T. M.; Xu, B.; Trzaska, S. "Chiral columnar metallomesogenic systems: Routes to polar materials" 214<sup>th</sup> ACS National Meeting, Las Vegas, Sept. **1997**
52. Xu, B.; Swager, T. M. "Design and synthesis of polycalix[4]arene chemosensors" 213<sup>th</sup> ACS National Meeting, San Francisco, Apr. **1997**

53. Fu, D. K.; Xu, B.; Marsella, M. J.; Swager, T. M. "Liquid-Crystalline Poly(Methyl Pyridinium Vinylene Phenylene Vinylene)-Synthesis and Properties" 209<sup>th</sup> ACS National Meeting, Anaheim, Apr. **1995**
54. Xu, B.; Swager, T. M. "Approaches to the Ferrimagnetic Mesomorphism Polymers" 209<sup>th</sup> ACS National Meeting, Apr. **1995**
55. Xu, B.; Fu, D. K.; Swager, T. M. "Design and Synthesis of Polar Bowlic Liquid-Crystals - Host-Guest Resolution of Chiral Tungsten-Oxo Calix [4]Arenes" 209<sup>th</sup> ACS National Meeting, Apr. **1995**
56. Swager, T. M.; Serrette, A. G.; Xu, B.; Knawby, D. M.; Zheng, H. X.; Distasi, V. F. "Designing Thermodynamically Stable Polar Assemblies Based on Columnar Liquid-Crystals" 208<sup>th</sup> National ACS Meeting, San Diego, Apr. **1994**

### **Preprints and Proceedings**

1. Wang, Q. G.; Yang, Z. M.; Li, L. H.; Xu, B.\* "Bioinspired multiphase materials: supramolecular hydrogels to mimic enzyme and bioluminescence." *PMSE Preprints* **2009**, 100, 125-126
2. Wang, L.; Yang, Z.; Gao, J.; Xu, K. M.; Gu, H.; Zhang, B.; Zhang, X.; Xu, B.\* "The complexes of bisphosphonate and magnetite nanoparticles to remove uranyl ions from aqueous phase." *AIP Conference Proceedings* (**2007**), 898 (Water Dynamics), 87-92
3. Zhimou Yang, Keming Xu, Bei Zhang, Bing Xu, Xixiang Zhang, and Chi K. Chang\* "Photosensitizer decorated iron oxide nanoparticles: bimodal agent for combined hyperthermia and photodynamic therapy" *Proc. SPIE* Vol. 6139, 613906 (Mar. 6, **2006**).
4. Yang, Z. M.; Xu, B.\* "Enzymatic formation of supramolecular polymeric nanofibers and subsequent hydrogelation" *Poly. Mater. Sci. Eng.* **2006**, 94, 293-294
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16. Swager, T. M.\*; Serrete, A. G.; Xu, B.; Knawby, D. M.; Zheng, H.; Distasi, V. F. "Designing Thermodynamically Stable Polar Assemblies Based on Column Liquid Crystals" *Poly. Prep.* **1994**, 35, 180.

### **Patents**

1. Swager, T. M.; Xu, B. \* "Calixarene-Based Transition Metal Complexes and Photonic Devices Comprising the Same" US 5,453,220.
2. Anquetil, P. A.; Hunter, I. W.; Madden, J. D.; Madden, P. G.; Pullen, A. E.; Swager, T. M.; Xu, B.; Yu, H. "Molecular Actuators, and Methods of Use Thereof" WO 2003101955; US7,138,075; US 7,658,868
3. Xu, B.; Ho, P. L.; Gu, H. W. "Biofunctional Magnetic Nanoparticles For Pathogen Detection" U.S. 7,754,444.
4. Xu, B.; Gao, P.; Yang C. "Methods of fabric treatment." U.S. 8,038,728.
5. Yang, C.; Yuen, M. M. F.; Xu, B "Percolation efficiency of the conductivity of electrically conductive adhesives" US8,231,808
6. Xu, B.; Yang, Z. M.; Xu, K. M. "Method for creating intracellular artificial nanostructures in situ" U.S. 8,338,151.
7. Xu, B.; Yang, Z. M.; Xu, K. M. "Multifunctional supramolecular hydrogels as biomaterials" U.S. Patent (pending).
8. Xu, B.; Li, X. M. "Supramolecular nanofibers and hydrogels based on oligopeptides functionalized with nucleobases" US Patent Application No: 61/491,547 (filed 05/31/2011). iEdision No.: 0925301-11-0002.
9. Xu, B.; Li, X. M. "Supramolecular nanofibers and hydrogels based on amino acid-nucleobase-glycoside conjugates" US Patent Application No: 61/491,544 (filed 05/31/2011). iEdision No.: 0925301-11-0001.
10. Xu, B.; Li, J. Y.; Kuang, Y. "Hydrogelators comprising D-amino acids and NSAID". US Patent Application No: 61/724, 026 (filed 11/8/2012). iEdision No.: 0925301-12-0003.
11. Xu, B; Kuang, Y. "Inhibition of tumor growth with aggregates of small molecules" US Patent Application No: 61/724, 026 (filed 03/6/2013). iEdision No.: 0925301-13-0001.
12. Xu, B.; Zhao, F.; Luo, H. B. "Supramolecular hydrogel of fMLF-based molecule gives a prolonged inflammation response in vivo" US Patent Application No: 61/935,190 (Filed 02/03/2014). iEdision No.: 0925301-13-0002.
13. Xu, B., Kuang, Y., Shi, J. F. "Enzymatic Formation of Pericellular Hydrogels/Nanofibrils" iEdision No.: 0925301-14-0001.

### **D. Services and Teaching**

#### **Academic services**



Referee for following journals:

*Journal of American Chemical Society, Accounts of Chemical Research, Chemical Reviews, Nano Letters, Analytical Chemistry, Journal Medicinal Chemistry, Molecular Pharmaceutics, Journal of Physical Chemistry B, Langmuir, Chemistry of Materials, ACS Nano, Journal of Organic Chemistry, ACS Applied Materials & Interfaces, ACS synthetic biology, ACS Biomaterials Science & Engineering, Crystal Growth & Design, Biomacromolecules, Bioconjugate Chemistry, Biotechnology Progress, Angewandte Chemie International Edition, Chemistry—An European Journal, Chemistry—An Asian Journal, European Journal of Inorganic Chemistry, Advanced Materials, Advanced Functional Materials, Small, ChemPhysChem, ChemMedChem, ChemPlusChem, ChemCatChem, Macromolecular Bioscience, Rapid Communications in Mass Spectrometry, Bioorganic and Medicinal Chemistry Letters, Advanced Synthesis & Catalysis, Journal of Biomedical Materials Research A, Applied and Environmental Microbiology, Chemical Communication, Journal of Materials Chemistry, Physical Chemistry Chemical Physics, The Analyst, Lab on a Chip, Soft Matter, Organic & Biomolecular Chemistry, Chemical Society Review, Integrative Biology, RSC Advances, Polymer Chemistry, Tetrahedron, Tetrahedron Letters, Applied Physics Letter, Journal Biomedical Nanotechnology, Solid State Communications, Journal of Solid State Chemistry, Journal of Colloid and Interface Science, Journal of Chromatography B, Journal of Chromatography A, Pure and Applied Chemistry, Nature Chemistry, Nature Chemical Biology, Nature Protocols, Nature Nanotechnology, Scientific Reports, Journal of Magnetism and Magnetic Materials, New Journal of Chemistry, Journal of Microelectromechanical Systems, International Journal of Pharmaceutics, Acta Biomaterialia, Chemotherapy, Colloids and Surfaces B: Biointerfaces, International Journal of Radiation Biology, Supramolecular Chemistry, Nanomedicine, Biochemical Engineering Journal, Bioanalysis, Materials Research Bulletin, Journal of Bioinorganic Chemistry, Proceeding of National Academy of Science of the USA, Contrast Media and Molecular Imaging, Biomaterials, Journal of Functional Biomaterials, Colloids and Surfaces A: Physicochemical and Engineering Aspects, Journal of Alloys and Compounds, Theranostics, Journal of Nanomaterials, Journal of Biomaterials Science: Polymer Edition, Organic Preparations and Procedures International, Composite Part B, Journal of Molecular Graphics and Modelling, Comptes rendus chimie, Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy, Journal of Inorganic and Organometallic Polymers and Materials, Dyes & Pigments, Chemistry & Biology, Neurochemistry International, Oncotarget, Expert Opinion on Drug Delivery, Journal of Peptide Science, Materials Letters, Chemical Physics Letters, Cellular and Molecular Bioengineering, Biomembranes, Green Chemistry, Current Cancer Drug Targets, Journal of Chemical Physics, Macromolecular Chemistry and Physics, ChemNanoMat, Arabian Journal of Chemistry, Chaos, Polymer International, Journal of Agricultural and Food Chemistry, Advanced Biosystems.*

Reviewer of proposals for the following funding agencies:

*National Science Foundation (USA); AFOSR (USA); ACS-PRF Fund (USA); Research Corporation for Science Advancement (USA); Medical Research Council (UK); A\*STAR (Singapore); Hong Kong Research Grants Council; The Wellcome Trust/DBT India Alliance; Croatian Science Foundation (Croatia); Technology Foundation STW (NWO), Netherlands; European Research Council*

Academic Editor of PLoS One (2012-)

Associate Editor of *Journal of Molecule Engineering Materials* (2012-)

Editorial advisory board of

*Journal of Colloid and Interface Science* (2009-2011)

*Nano Today* (2009-)

*Journal of Functional Biomaterials* (2010-)

*Materials Today Chemistry* (2016-)

*Bioconjugate Chemistry* (2017-)

Instructor, “*Multifunctional Nanoparticles for Biomedical Applications*” 2010 MRS Spring Meeting Tutorials

Chairman of Graduate Admission Committee (2010-2012) of Department of Chemistry (Brandeis Univ)

Chairman of organizing committee of the 13th symposium on chemistry postgraduate research in Hong Kong (2006)

Member of committee on nanoscience PG program, HKUST (2005-2008)

Member of departmental seminar committee, HKUST (2005-2008)  
 Member of departmental undergraduate committee, HKUST (2005-2008)  
 Member of task force on nanoscience PG program, HKUST (2005)  
 Member of executive committee of bioengineering program, HKUST (2004-2008)  
 Institution representative of symposium on chemistry postgraduate research in Hong Kong (2004-2006)  
 Session chair, 227th National ACS Spring meeting, Inorganic Chemistry Division (Mar. 2004)  
 Chairman of departmental seminar committee, HKUST (2002-2004, 2006-2007)  
 Member of faculty recruiting committee, HKUST (2006)  
 Treasurer, Hong Kong Chapter of American Chemical Society (2005-2007)

### **Courses taught**

Structural Elucidation in Organic Chemistry	2000-2001	Fall	100%
Structural Elucidation in Organic Chemistry	2001-2002	Fall	100%
Organic Chemistry II	2001-2002	Spring	50%
Analytical Chemistry	2001-2002	Spring	20%
Experimental Methods for Materials	2001-2002	Spring	10%
Structural Elucidation in Organic Chemistry	2002-2003	Fall	100%
Organic Chemistry II	2002-2003	Spring	50%
Experimental Methods for Materials	2002-2003	Spring	10%
Analytical Chemistry	2002-2003	Spring	20%
Structural Elucidation in Organic Chemistry	2003-2004	Fall	100%
Organic Chemistry II	2003-2004	Spring	50%
Structural Elucidation in Organic Chemistry	2004-2005	Fall	100%
Organic Chemistry II	2004-2005	Spring	100%
Analytical Chemistry	2004-2005	Spring	20%
Structural Elucidation in Organic Chemistry	2005-2006	Fall	100%
Molecular Basis of Nanobiotechnology	2005-2006	Spring	100%
Structural Elucidation in Organic Chemistry	2006-2007	Fall	100%
Molecular Basis of Nanobiotechnology	2006-2007	Spring	100%
Advanced Organic Chemistry: Spectroscopy	2008-2009	Spring	100%
Molecular Foundation for Nanobiotechnology	2008-2009	Fall	100%
Advanced Organic Chemistry: Spectroscopy	2009-2010	Spring	100%
Advanced experimental chem I: materials chemistry	2009-2010	Fall	100%
Advanced Organic Chemistry: Spectroscopy	2010-2011	Spring	100%
Advanced Organic Chemistry: Spectroscopy	2010-2011	Fall	100%
Molecular Foundation for Nanobiotechnology	2011-2012	Spring	100%
Advanced Organic Chemistry: Spectroscopy	2011-2012	Fall	100%
Advanced Organic Chemistry: Spectroscopy	2012-2013	Spring	100%
Advanced experimental chem I: materials chemistry	2012-2013	Fall	100%
Molecular Foundation for Nanobiotechnology	2013-2014	Spring	100%

## Training of students and postdoctoral associates

Name	Degree/(position)	Year of Degree Awarded /(Status)	Current Job
He, Hongjian	Ph.D. Candidate	2019	
Feng, Zhaoqianqi	Ph.D. Candidate	2018	
Li, Jie	Ph.D. Candidate	2017	
Zhou, Rong	Ph.D. Candidate	2017	
Zhou, Ning	Ph.D. Candidate	2017	
Zhou, Jie	Ph.D.	2017	Postdoc, UCS
Du, Xuewen	Ph.D.	2016	Postdoc, UCSF
Yuan, Dan	Ph.D.	2016	
Shi, Junfeng	Ph.D.	2015	Postdoc, NIH
Zhao, Fan	Ph.D.	2014	Postdoc, Stanford Univ.
Kuang, Yi	Ph.D.	2013	Postdoc, Kyoto Univ.
Li, Jiayang	Ph.D.	2013	Assoc Prof., National NanoCenter, China.
Pan, Yue	Ph.D.	2012	Assoc Prof., Soochow Univ.
Gao, Yuan	Ph.D.	2011	Professor, National NanoCenter, China
Xu, Keming	Ph.D.	2008	Research Associate, IBN, Singapore
Li, Lihua	Ph.D.	2008	Postdoc, Univ. Hong Kong
Gao, Jinhao	Ph.D.	2008	Professor, Xiamen University
Yang, Cheng	Ph.D.	2007	Assoc. Prof, Tsinghua-Shenzhen, China
Wang, Ling	Ph.D.	2007	Assoc. Prof, Nankai Univ., China
Yang, Zhimou	Ph.D.	2006	Professor, Nankai Univ., China
Gu, Hongwei	Ph.D.	2004	Professor, Soochow University, China
Chen, Junpeng	M.S.	2009	MBA candidate, Benteley College
Ma, Man-Lung	M. Phil.	2008	Visiting student, Stanford Univ
Kuang, Yi	M. Phil.	2008	PhD candidate, Brandeis Univ.
Xu, Chenjie	M. Phil.	2004	Professor, Xiamen Univ.
Yu, Chun-Wing	M. Phil.	2002	PhD candidate, Chinese Univ. of Hong Kong
Choi, Ming-Fai	M. Phil.	2002	Analyst, Kwok Kwong Chem. Co., Hong Kong
Wu, Chong-Su	(Visiting Postdoc)	(2012-2013)	Chiao-Tung Univ., Taiwan
Zhong, Wenying	(Visiting Scholar)	(2012-2013)	Professor, Chinese Pharm. Univ., China
Huang, Yibing	(Visiting Scholar)	(2012-2013)	Professor, Jilin Univ., China
Fu, Degang	(Visiting Scholar)	(2001-2002)	Professor, Southeast Univ., China
Mao, Zhongwan	(Visiting Scholar)	(2001)	Professor, Zhongshan Univ., China
He, Jidong	(Visiting Scholar)	(2001)	Professor, Qingdao Univ., China
Wu, Dongdong	(postdoc)	(2012-2015)	Postdoc, U. Delaware
Zhang, Ye	(postdoc)	(2010-2014)	Assistant Professor, OST, Japan
Li, Xinming	(postdoc)	(2009-2012)	Professor, Soochow University, China
Lin, Hsin-Chieh	(postdoc)	(2010-2011)	Assistant Professor, National Chiao-Tung Univ, Taiwan
Li, Junfeng	(postdoc)	(2010)	Postdoc, Washington U.
Liang, Gaolin	(postdoc)	(2005-2008)	Professor, USTC
Wang Qigang	(postdoc)	(2005-2007)	Professor, Tongji Univ
Zhang, Min	(postdoc)	(2004-2006)	Professor, Guanxi University
Yuan, Fang	(postdoc)	(2003-2004)	Vice President, R&D, Enzmed.
Zhang, Yan	(postdoc)	(2002-2004)	Professor, Nanjing University
Tang, Jun	(postdoc)	(2002-2003)	Professor, Jinlin Univ., China
Xing, Bengang	(postdoc)	(2000-2002)	Associate Professor, Nanyang Inst. of Tech.

## E. Research Support

<i>Grant No.</i>	<i>Sources</i>	<i>Role</i>	<i>Status</i>
R01CA142746	NIH	PI	2010-2020
R21AI130560	NIH	PI	2017-2019
RGP 0056/2008	Human Frontier Science Program	Co-PI	2008-2011
DAG00/01.SC30	University Grant Council-HKUST	PI	Completed
DAG00/02.SC30	University Grant Council-HKUST	PI	Completed
PDF-2001	University Grant Council-HKUST	PI	Completed
PDF-2002	University Grant Council-HKUST	PI	Completed
612301	Research Grant Council-HK	PI	Completed
TAL01/02.002	TAL-HK	PI	Completed
UIM/109	Innovative Technology Fund-HK	PI	Completed
Dupont01/02.SC01	Dupont-US	PI	Completed
609402	Research Grant Council-HK	Co-I	Completed
608202	Research Grant Council-HK	PI	Completed
603903	Research Grant Council-HK	PI	Completed
HIA02/03.SC06	University Grant Council-HKUST	PI	Completed
CBI001	US Navy (subcontracted from Cellular Bioengineering Inc., USA)	PI	Completed
CBI002	US Navy (subcontracted from Cellular Bioengineering Inc., USA)	PI	Completed
600603	Research Grant Council-HK	Co-I	Completed
600504	Research Grant Council-HK	PI	Completed
600505	Research Grant Council-HK	PI	Completed
604905	Research Grant Council-HK	PI	Completed
603906	Research Grant Council-HK	PI	Completed
CA05/06.SC03	Research Grant Council-HK	Co-I	Completed
CA06/07.SC06	Research Grant Council-HK	Co-I	Completed
600107	Research Grant Council-HK	Co-I	Completed
603907	Research Grant Council-HK	PI	Terminated
603608	Research Grant Council-HK	PI	Terminated