

Chuanbin Mao, Assistant Professor

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ACADEMIC PREPARATION

Post Doctorate, Chemistry & Biochemistry, Nanobiotechnology, and Nanoelectronics
The University of Texas at Austin, 2000-2005

Post Doctorate, Biomaterials/Biomimetics, Tsinghua University, Beijing, China, 1997-1999

Ph. D., Materials Chemistry, Northeastern University, China, 1997

Bachelor, Physical Chemistry, Northeastern University, Shenyang, Liaoning, China, 1992

APPOINTMENTS

08/05-present, Assistant Professor, Department of Chemistry & Biochemistry, University of Oklahoma, Norman, OK

08/00-07/05, Postdoctoral Fellow and Research Associate, Departments of Chemistry & Biochemistry and Chemical Engineering, and Microelectronics Research Center, University of Texas at Austin (Promoted to Research Associate in 2002)

01/00-07/00, Visiting Scholar, University of Tennessee, Knoxville, Tennessee

04/97-12/99, Postdoctoral fellow, Lecturer, and Associate Professor, Tsinghua University, Beijing

FUNDING HISTORY

External Funding since at OU (total:\$ 3,299,915):

(1) "Phage-Inspired Nanoparticles with Genetically Tunable Target Specificity," **NIH R01**, 09/30/09-08/31/11, \$805,786, *Mao as a single PI*.

(2) "Phage-Mimetic Nanorods for Targeted Breast Cancer Treatment," **NIH R21**, 09/01/09-08/31/11, \$400,803, *Mao as a single PI*.

(3) "Bone-seeking and cell-targeting non-viral vectors for BMP-2 gene delivery," **NIH R03**, 07/17/2009-06/31/2012, \$225,000 *Mao as a single PI*.

(4) "CAREER: Genetically Modifiable Shape-Tunable Protein Nanotubes as Templates for Controlled Nano-Synthesis and Assembly." **NSF**, 02/01/2009-01/31/2014, \$500,000, *Mao as a single PI*

(5) "Biom mineralization and self-assembly of genetically modifiable nanofibers to build bone tissue engineering scaffolds," **NSF**, 07/01/2009-06/30/2012, \$385,542 *Mao as a single PI*

(6) "Gene delivery vectors inspired from the structure and assembly process of target-recognizing phage," **NSF**, 07/01/2009-06/30/2012, \$300,000 *Mao as a single PI*

(7) "Bio-templated Nanomaterials for Environmental Remediation Applications," **NSF**, *Mao as a University PI* (with Bijhem Scientific Inc as a company PI), 07/01/2009-06/30/2010, \$50,000 for Mao

(8) "Nanoscale Exploratory Research: Building Biomimetic Nano-Tracks and Transporters on Target-Recognizing Filamentous Viruses," **NSF**, 07/01/2007-06/30/2009, \$118,057. *Mao as a single PI*

(9) "Genetically Engineered Nanoparticles for Treating Breast Cancer," **DoD Congressionally Directed Medical Research Program**, 09/01/2007-08/31/2009, \$109,727, *Mao as a single PI*

(10) "A bionanotechnological approach to bone regeneration," **OCAST (Oklahoma Center for the Advancement of Science and Technology)**, 08/01/2006-07/31/2009, \$300,000, *Mao as a single PI*

(11) "Virus-Based Nanowire Assembly for Mid-IR Detectors" **OCAST**, \$90,000, 06/01/2008-05/31/2010, *Mao as a University PI* (with Nanolight Inc as a company PI)

(12) “Identification of material-binding peptide using non-toxic viruses as a platform.”
Lockheed Martin Energy System, Inc., 2007, \$15,000, *Mao as a single PI*

Internal Funding (Total: \$15,000):

- (1) OU College of Engineering Seed Money; \$10,000 (\$3000 for Mao as co-PI) , 2008-2009
- (2) “Self-assembly of mineralized phage nanofibers into a bone-like biomaterial,” OU College of Arts & Sciences; \$6000, 2007, PI
- (3) “Biomimetic nucleation of bone nanocrystals on collagen-like biomolecular nanowires,” OU Research Council, \$6000, 2006, PI

COURSES TAUGHT AT OU

Fall 2009, Physical Chemistry I, CHEM 3423, 111 undergraduate and 4 graduate students
Spring 2009, Nanotechnology and Bionanotechnology, CHEM 4923-001 CAPSTONE, 42 undergraduate students
Spring 2008, Nanotechnology and Bionanotechnology, CHEM 4923-001 CAPSTONE, 59 undergraduate students
Fall 2007, Physical Chemistry I, CHEM 3423, 75 undergraduate and 6 graduate students
Spring 2007, Advanced Nanotechnology, CHEM 6670, 5 graduates
Fall 2006, Nanotechnology and Bionanotechnology, CHEM 4923-001 (CAPSTONE for 25 undergraduate students) & CHEM 5923-001 (Special Topics for 8 graduate students)
Fall 2005, Nanotechnology and Bionanotechnology, CHEM 4923-001 (CAPSTONE for 6 undergraduate students) & CHEM 5923-001 (Special Topics for 3 graduate students)

HONORS AND AWARDS

Senior Associate Editor, *Microscopy Research & Technique*, Wiley, 2009-present

NSF CAREER Award, 2009-2014

Breast Cancer Concept Award, Department of Defense, 2007

OCAST New Scientist Award, 2006 (The only recipient in 2006)

Member of International Scientific Committee, The 10th International Symposium on Biom mineralization: From Centimeter to Nanometer, 2008

Invited Editorial Board member, *Frontiers of Materials Science in China*, Springer, 2009-present

Invited Guest Editor for two special issues (one in 2004, one in 2006) of international journal *Microscopy Research and Technique* called “Nanomaterials Characterization Using Microscopy” published by Wiley

Invited Guest Editor for one special issue of international journal *Microscopy Research and Technique* called “Bio-Nano Imaging and Analysis” published by Wiley, in process

Invited Editorial Board Member of internationally circulated Journal *Microscopy Research and Technique* published by Wiley, 2002-present

Elected Full Member, Sigma Xi, the Scientific Research Society, 2002

One of 100 All-China Outstanding Doctoral Dissertations prize awarded by the National Ministry of Education of China in June 1999

Best Paper Award, Chinese Materials Research Society (C-MRS), 1996 and 1998

Tsinghua University Outstanding Postdoctoral Fellow, 2000

HONORS AND AWARDS OF UNDERGRADUATE & GRADUATE STUDENTS IN MY GROUP

Graduate student Gopal Abbineni, T.H. Lee Williams International Travel Scholarship, 2009

Graduate student Binrui Cao, Robberson Conference Presentation & Creative Exhibition Travel Award, 2009.

Graduate student Binrui Cao, Lloyd E. Swearingen Award for his outstanding performance in research, 2009

Graduate student Gopal Abbineni, 1st place award in Science Category on OU Research & Performance Day at National Weather Center, 2009

Graduate Student Penghe Qiu, Robberson Conference Presentation & Creative Exhibition Travel Award, 2009

Graduate student Gopal Abbinenni, Robberson Conference Presentation & Creative Exhibition Travel Award, 2009

Undergraduate student Christina Jensen, Undergraduate Research Opportunities Program award, OU Honors College, 2009

Undergraduate student Mohammed Malik, Undergraduate Research Opportunities Program award, OU Honors College, 2008

Undergraduate student David Freeman, Undergraduate Research Opportunities Program award, OU Honors College, 2007

Undergraduate student Yen Nguyen, Undergraduate Research Opportunities Program award, OU Honors College, 2006

PROFESSIONAL ACTIVITIES SERVING SCIENCE COMMUNITY

Reviewed **Grant proposals** for National Institute of Health (NIH), National Science Foundation (NSF), Department of Energy (DOE), U.S. Civilian Research and Development Foundation (CRDF), Canada Foundation for Innovation (CFI), Foundation for Polish Science

Member, NIH **Nano in Biology/Medicine** Special Emphasis Study Section, January/March 2008

Panelist for NSF **Review Panel** for different divisions (Emerging Frontiers, Materials Research & Chemical/Bioengineering/Environmental/Transport Systems), 2005-2009

Reviewed **Manuscripts** for the following internationally circulated Journals:
Science, Journal of the American Chemical Society, Angewandte Chemie International Edition, ACS Nano, Chemistry of Materials, Langmuir, Biomacromolecules,

Nanotechnology, Chemical Physics Letters, Journal of Materials Research, Chemical Communications, Journal of Materials Chemistry, Organic & Biomolecular Chemistry, Physical Chemistry Chemical Physics, New Journal of Chemistry, Philosophical Magazine Letters, Surface Science, Journal of Materials Science, Materials Science & Engineering C: Biomimetic and Supramolecular Systems, Materials Chemistry and Physics, Journal of Physics D: Applied Physics, Journal of Physics: Condensed Matter, Microscopy Research and Technique, Surface & Coatings Technology, Surface & Interface Analysis, Ceramics International, Micron

RESEARCH HIGHLIGHTED IN NEWS MEDIA

Research group highlighted by a dedicated story in a local newspaper *Oklahoma Daily*

(online version: “*Nanotechnology Getting Some Biology*,” November 28, 2007;

<http://www.highbeam.com/doc/1P1-146576242.html>

Hard print version: “*Research by OU professor, students leads biotech front.*” November 29, 2007)

Research on nanobiotech highlighted by a newspaper *Tulsa World* (September 22, 2007), available

online at http://www.tulsaworld.com/business/article.aspx?articleID=070922_5_E1_hHigh60366

A COMPLETE LIST OF PUBLICATIONS

(A) Work From OU (C. B. Mao as a corresponding author unless otherwise noted)

Invited contributions:

1. Cao, B.; Mao, C. B. “Chapter 8: Phage-Templated Synthesis of Inorganic Nanomaterials,” for the book “*Phage Nanobiotechnology*”, Royal Chemical Society, UK, **2009**, invited book chapter.
2. Qiu, P.; Mao, C. B. “Bio-templated synthesis and assembly of inorganic nanomaterials.” *Current Opinion in Solid State and Materials Science*, **2009**, invited review, in preparation.
3. Abbineni, G.; Mao, C. B. “Design and applications of genetically engineered nanoconstructs,” in *Nanocomposites for Life Sciences*, Wiley-VCH, **2009**, invited book chapter, in press.
4. Mao, C. B. “Bio-Inorganic Hybrid Nanomaterials: Strategies, Syntheses, Characterization and Application.” *ChemBioChem*, **2008**, *9*, 2333 -2334.

Accepted and Published:

5. Qiu, P.; Mao, C. B. “Biomimetic branched hollow fibers templated by self-assembled fibrous polyvinylpyrrolidone (PVP) structures in aqueous solution.” *ACS Nano*, **2009**, accepted.
6. Wang, F.; Cao, B.; Mao, C. B. “Bacteriophage Bundles with Pre-Aligned Ca^{2+} Initiate the Oriented Nucleation and Growth of Hydroxyapatite.” *Chemistry of Materials*, **2009**, accepted.
7. Abbineni, G.; Safiejko-Mroccka, B.; Mao, C. B. “Development of an optimized protocol for studying the interaction of filamentous bacteriophage with mammalian cells by fluorescence microscopy.” *Microscopy Research & Technique*, **2009**, DOI: 10.1002/jemt.20793.
8. Wang, M.; Mi, C.; Zhang, Y.; Liu, J.; Li, F.; Mao, C. B. (co-corresponding author); Xu, S. K. (co-corresponding author). “NIR-responsive silica-coated $\text{NaYbF}_4\text{:Er/Tm/Ho}$ upconversion fluorescent nanoparticles with tunable emission colors and their applications in immunolabeling and fluorescent imaging of cancer cells.” *Journal of Physical Chemistry C*, **2009**, *113*, 19021–19027.
9. Wang, M.; Hou, W.; Mi, C.; Li, F.; Yi, K.; Wang, W.; Teng, H.; Mao, C. B. (co-corresponding author); Xu, S. K. (co-corresponding author) Immunoassay of goat anti-human immunoglobulin G antibody based on luminescence resonance energy transfer between near infrared responsive $\text{NaYF}_4\text{:Yb,Er}$ upconversion fluorescent nanoparticles and gold nanoparticles.” *Analytical Chemistry*, **2009**, *81*, 8783–8789.

10. Sun, P.; Zhang, H.; Liu, C.; Fang, J.; Wang, M.; Chen, J.; Zhang, J.; Xu, Mao, C. B. (co-corresponding author); S. K. (co-corresponding author). "Multifunctional nanoparticles with covalently linked magnetic and fluorescent components and active functional groups for bioconjugation and their applications in immuno-labeling and fluorescent imaging of cancer cells." *Langmuir*, DOI: 10.1021/la9024553.
11. Mao, C. B.; Liu, A.; Cao, B. "Virus-based chemical and biological sensing." *Angewandte Chemie International Edition*, **2009**, 48, 6790-6810.
12. Ngweniform P.; Abbineni G.; Cao, B.; Mao, C. B. "Self-assembly of drug-loaded liposomes on genetically engineered target-recognizing M13 phage: a novel nanocarrier for targeted drug delivery." *Small*, **2009**, 5, 1963-1969.
13. Wang, M.; Mi, C.; Wang, W.; Liu, C.; Wu, Y.; Xu, Z.; Mao, C. B. (co-corresponding author); Xu, S. K. (co-corresponding author) "Immunolabelling and NIR-excited fluorescent imaging of HeLa cells by using NaYF₄:Yb,Er upconversion nanoparticles." *ACS Nano*, **2009**, 1580-1586.
14. Cao, B.; Mao, C. B. "Identification of microtubule-binding domains on microtubule-associated proteins by major coat phage display technique." *Biomacromolecules* **2009**, 10, 555-564.
15. Wang, F.; Mao, C.B. "Nanotubes connected to a micro-tank: hybrid micro-/nano-silica architectures transcribed from living bacteria as bioreactors." *Chemical Communications*, **2009**, 1222-1224.
16. Ngweniform P.; Li, D.; Newton, S.; Klebba, P.; Mao, C.B. "Self-Assembly of drug-loaded liposomes on genetically engineered protein nanotubes: A potential anti-cancer drug delivery vector." *Soft Matter* **2009**, 5, 954-956.
17. Liu, A.; Abbineni, G.; Mao, C. B. "Nanocomposite films assembled from genetically engineered filamentous viruses and gold nanoparticles: nanoarchitecture- and humidity-tunable surface plasmon resonance spectra." *Advanced Materials*. **2009**, 21, 1001-1005.
18. Qiu, P.; Mao, C. B. "Seed-mediated shape evolution of gold nanomaterials: from spherical nanoparticles to polycrystalline nanochains and single-crystalline nanowires", *Journal of Nanoparticle Research*, **2009**, 11, 885-894.
19. Abbineni, G.; Modali, S.; Mao, C. Assembly and characterization of phage-like nanoparticles (PLN's) for targeted breast cancer treatment. *PMSE Preprints*, **2009**, 100, 165.
20. Wang, F.; Li, D.; Newton, S.; Klebba, P.; Mao, C. B. "Genetically modifiable flagella as templates for silica fibers: from hybrid nanotubes to 1D nanohole array." *Advanced Functional Materials* **2008**, 18, 4007 - 4013.
21. Modali, S.; Abbineni, G.; Jayanna, P.; Petrenko, V.; Mao, C. B. "Evolutionary selection of bone mineral hydroxyapatite binding peptide using landscape phage library." *Nanotechnology 2008: Life Sciences, Medicine, and Bio Materials*, **2008**, CRC Press, Vol. 2, pp 465 - 467.
22. Wang, F.; Mao, C. B. "Nano-assembly of conducting polyaniline and polypyrrole by using biological templates from nano to micro scales." *PMSE Preprints*, **2008**, 98, 62-63.
23. Cao, B.; Mao, C. B. "Oriented nucleation of hydroxylapatite crystals on spider dragline silks." *Langmuir*, **2007**, 23, 10701-10705.
24. Castano-Izquierdo, H.; Mao, C. B. "Osteogenic differentiation of mesenchymal stem cells on biomineralized collagenous scaffolds for bone tissue engineering." *PMSE Preprints*, **2007**, 97, 817-818.
25. Tang, S. (Corresponding author); Mao, C. B.; Liu, Y. R.; Kelly, D. Q.; Banerjee, S. K. "Protein-mediated nanocrystal assembly for flash memory fabrication." *IEEE Transactions on Electron Devices*, **2007**, 54, 433-438.
26. Mao, C. B. "Nanomaterials Characterization: Structures, Compositions, and Properties." *Microscopy Research & Technique*, **2006**, 69, 519-521. (mini-review)

(B) Work Prior to OU

27. Liu, Y.; Tang, S.; Mao, C. B.; Banerjee, S. K. "SiC Nanocrystal Flash Memory Fabricated with Protein-mediated Assembly." *IEEE 64th Device Research Conference Digest*, **2006**, 121-122.
28. Tang, S.; Mao, C. B.; Liu, Y.; Kelly, D.; Banerjee, S. "Nanocrystal flash memory fabricated with protein-mediated assembly." *IEEE International Electron Devices Meeting Technical Digest*, **2005**, 181-184. (Selected as Press News in IEDM-2005)
29. Mao, C. B.; Solis, D. J.; Reiss, B. D.; Kottmann, S. T., Sweeney, R. Y.; Hayhurst, A.; Georgiou, G.; Iverson, B.; Belcher, A. M. "Virus-based toolkit for the directed synthesis of magnetic and semiconducting nanowires." *Science*, **2004**, 303, 213-217.
 - * Highlighted in (1) **Chemical & Engineering News**, "Today's Headlines—Nanotechnology: Advancing Toward Finer Circuitry." Vol. 82, No.2, January 12, 2004, p. 5; (2) **Science News**, "Nanowires grow on viral templates." Vol. 165, No. 3, January 17, 2004, p. 46. (3) **Nature Materials** (Nanozone news), "Priming viruses for nanochemistry," January 22, 2004. (4) **New York Times**, "What's Next—Benign Viruses Shine on the Silicon Assembly Line," Section G, Page 8, Column 1, Circuits, February, 2004. (5) **National Public Radio: Science Friday**, "Biological electronics," January 9, 2004. (6) **Current Opinion in Microbiology**, "Emerging foundations: nano-engineering and bio-microelectronics for environmental biotechnology," 7 (3): 267-273, June 2004.
30. Mao, C. B.; Flynn, C. E.; Hayhurst, A.; Sweeney, R.; Qi, J.; Iverson, B.; Georgiou, G.; Belcher, A. M. "Viral assembly of oriented quantum dot nanowires." *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, **2003**, 100 (12), 6946-6951.
 - * Highlighted in (1) **Science News**, "Scientists co-opt viruses, bacteria, and fungi to build new structures," Vol. 164, No. 1, July 5, 2003, p.7. (2) **Nature Biotechnology**, "Commercializing nanotechnology," 2003; 21 (10): 1137-1143. (3) **Current Opinion in Microbiology**, "Emerging foundations: nano-engineering and bio-microelectronics for environmental biotechnology," 7 (3): 267-273, June 2004.
31. Lee, S. W.; Mao, C. B.; Flynn, C. E.; Belcher, A. M. "Ordering of quantum dots using genetically engineered viruses." *Science*, **2002**, 296, 892-895.
32. Reiss, B. D.; Mao, C. B.; Solis, D. J.; Ryan, K. S.; Thomson, T.; Belcher, A. M. "Biological routes to ferromagnetic metal alloy nanostructures." *Nano Letters*, **2004**, 4, 1127-1132.
33. Sweeney, R.; Mao, C. B.; Gao, X.; Burt, J. L.; Belcher, A.; Georgiou, G.; Iverson, B. "Bacterial biosynthesis of cadmium sulfide nanocrystals." *Chemistry & Biology*, **2004**, 11, 1553-1559.
34. Mao, C. B. "Introduction: nanomaterials characterization using microscopy." *Microscopy Research & Technique*, **2004**, 64, 345-346. (Mini-review)
35. Flynn, C. E.; Mao, C. B. (co-first author); Hayhurst, A.; Williams, J.; Georgiou, G.; Iverson, B.; Belcher, A. M. "Synthesis and organization of nanoscale II-VI semiconductor materials using evolved peptide specificity and viral capsid assembly." *Journal of Materials Chemistry*, **2003**, 13(10), 2414-2421.
 - *(1) Highly ranked as a **Hot Article** of this journal by the editor; (2) highlighted in **Chemical Biology Virtual Journal**, issue 18, 2003.
36. Mao, C. B.; Qi, J.; Belcher, A. M. "Building quantum dots into solids with well-defined shapes." *Advanced Functional Materials*, **2003**, 13(8), 648-656.
37. Qi, J.; Mao, C. B.; Belcher, A. M.; White, J. M. "Optical anisotropy in individual CdS quantum dot ensembles." *Physical Review B*, **2003**, 68 (12), 125319. ,
38. Li, H.; Feng, Q.; Cui, F.; Ma, C.; Li, W.; Mao, C. B. "Biomimetic research based on the study of nacre structure." *Journal of Tsinghua University (Science and Technology edition)*, **2001**, 41, 41-47. (In Chinese)

39. Pedraza, A. J.; Fowlkes, J. D.; Jesse, S.; Mao, C. B.; Lowndes, D. H. "Surface micro-structuring of silicon by excimer-laser irradiation in reactive atmosphere." *Applied Surface Science*, **2000**, 168, 251-257.
40. Mao, C. B.; Li, H.; Cui, F.; Feng, Q.; Ma, C. "Oriented growth of phosphates on polycrystalline titanium in a process mimicking biomineralization." *Journal of Crystal Growth*, **1999**, 206, 308-321.
41. Mao, C. B.; Li, H.; Cui, F.; Feng, Q.; Ma, C. "The functionalization of titanium with EDTA to induce biomimetic mineralization of hydroxyapatite." *Journal of Materials Chemistry*, **1999**, 9, 2573-2582.
42. Mao, C. B.; Li, H.; Cui, F.; Feng, Q.; Wang, H. "Biomimetic synthesis of inorganic materials." *Progress in Chemistry* **1998**, 10, 246-254. (In Chinese)
43. Mao, C. B.; Li, H.; Cui, F.; Feng, Q.; Wang, H.; Ma, C. "Oriented growth of hydroxyapatite on (0001) textured titanium with functionalized self-assembled silane monolayer as template." *Journal of Materials Chemistry*, **1998**, 8, 2795-2800. [Erratum: *Journal of Materials Chemistry* (1999), 9(11), 2959].
44. Mao, C. B.; Li, H.; Cui, F.; Feng, Q.; Wang, H.; Ma, C. "Biomimetic growth of calcium phosphates with organized hydroxylated surface as template." *Journal of Materials Science Letters*, **1998**, 17, 1479-1481.
45. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X.; "Rapid one powder process to synthesize phase assemblage of $(\text{Bi, Pb})_2\text{Sr}_2\text{CaCu}_2\text{O}_x$, Ca_2CuO_3 and CuO ." *Physica C*, **1998**, 303, 28-32.
46. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X. "A strong texture correlation between $(\text{Bi, Pb})_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_x$ and its precursor $(\text{Bi, Pb})_2\text{Sr}_2\text{CaCu}_2\text{O}_x$." *Journal of Materials Science Letters*, **1998**, 17, 1341-1343.
47. Mao, C. B.; Zhou, L.; Wu, X.; Zhang, P.; Sun, X. "Direct evidence for growth from textured $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$ to textured $(\text{Bi, Pb})_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_x$." *Proceedings of the International Workshop on Critical Currents in Superconductors for Practical Applications*, March 6-8, 1997. Edited by: L. Zhou, H. W. Weber, E. W. Collings. World Scientific: Singapore, **1998**, 159-162.
48. Zhou, L.; Mao, C. B.; Zhang, P.; Wang, K.; Wu, X. "Formation mechanism of textured Bi-2223 phase in Ag-clad tapes." *Proceedings of the International Workshop on Critical Currents in Superconductors for Practical Applications*, March 6-8, 1997. Edited by: L. Zhou, H. W. Weber, E. W. Collings. World Scientific: Singapore, **1998**, pp. 58-63.
49. Duan, Z. Z.; Wu, X.; Zhou, L.; Mao, C. B.; Li, C. S.; Zheng, H. L. "Fabrication of silver-sheathed Bi-2223 tapes using powders produced by modified co-precipitation process." *Proceedings of the International Workshop on Critical Currents in Superconductors for Practical Applications*. March 6-8, 1997. Edited by: L. Zhou, H. W. Weber, E. W. Collings. World Scientific: Singapore, **1998**, pp.233-236.
50. Zhou, L.; Mao, C. B.; Wu, X. "A new chemical process to synthesize ultrafine BiPbSrCaCuO powder." *Proceedings of 16th International Cryogenic Engineering Conference /International Cryogenic Materials Conferences (ICEC16/ICMC)*. Part2, Kitakyushu, Japan, May 20-24, 1996, Edited by T. Haruyama, J. Mitsui, and K. Yamafuji. Oxford: Elsevier Science, **1997**, pp.1421-1429.
51. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X. "Modified solution-sol-gel process to synthesize BiPbSrCaCuO powder with low carbon content." *Proceedings of 16th International Cryogenic Engineering Conference /International Cryogenic Materials Conferences (ICEC16/ICMC)*, Part 2. Kitakyushu, Japan, May 20-24, 1996, Edited by T. Haruyama, J. Mitsui, and K. Yamafuji. Oxford: Elsevier Science, **1997**, pp.1417-1420.
52. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X. "New understanding of silver-induced texture in powder-in-tube processed $\text{Ag/Bi}(2223)$ tape." *Physica C*, **1997**, 281, 159-175.
53. Mao, C. B.; Zhou, L.; Sun, X. "Interaction between BiPbSrCaCuO powder and ambient atmosphere." *Physica C*, **1997**, 281, 149-158.

54. Mao, C. B.; Zhou, L.; Sun, X. "Optimization of solution-sol-gel process to synthesize homogeneous BiPbSrCaCuO powder." *Physica C*, **1997**, 281, 27-34.
55. Mao, C. B.; Zhou, L.; Sun, X. "Coprecipitation-based micro-reactor process to synthesize soft-agglomerated BiPbSrCaCuO powder with low carbon content." *Physica C*, **1997**, 281, 35-44.
56. Mao, C. B.; Zhou, L.; Cui, F.; Li, H. "Optimization of a new modified wet-chemistry process to synthesize BPSCCO superconductor precursor powder with specific stoichiometry." *Journal of Materials Chemistry*, **1997**, 7, 1451-1456.
57. Zhou, L.; Mao, C. B.; Wu, X.; Sun, X. "Manufacture of ultrafine BiPbSrCaCuO powder by an in situ nanometer reaction process." *Superconductor Science and Technology*, **1997**, 10, 47-51.
58. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X. "Spectroscopic investigations of adsorption during fabrication of silver-sheathed (Bi, Pb)₂Sr₂Ca₂Cu₃O_x superconducting tapes." *Superconductor Science and Technology*, **1997**, 10, 241-248.
59. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X. "The combination of polymeric solution-sol-gel process and combustion synthesis to manufacture BiPbSrCaCuO powder." *Superconductor Science and Technology*, **1996**, 9, 994-1000.
60. Mao, C. B.; Zhou, L.; Sun, X.; Wu, X. "The effect of configuration of silver layer on texture growth and microstructure in silver sheathed (Bi, Pb)₂Sr₂Ca₂Cu₃O_x superconducting tape." *Superconductor Science and Technology*, **1996**, 9, 1001-1008.
61. Mao, C. B.; Du, Z.; Zhou, L. "Modified coprecipitation process of synthesizing Bi-system superconductor precursor powder and its stoichiometry." *Science in China*, **1996**, E39 (2), 181-190.
62. Mao, C. B.; Zhou, L.; Sun, X. "Solution- sol-gel -SHS process of quickly synthesizing bismuth-based superconductor precursor powder." *Science in China*, **1996**, E39(6), 571-578.
63. Mao, C. B.; Zhou, L.; Du, Z. "Synthesis of ultrafine bismuth-based superconductor precursor powder with ultra-low carbon content." *Chemistry*, **1997**, 2, 51-53, 57. (In Chinese)
64. Mao, C. B.; Zhou, L.; Wu, X.; Sun, X. "Synthesis of ultrafine Bi-Pb-Sr-Ca-Cu-O superconductor precursor powder with low carbon content by a nanometer reaction process." *Acta Metallurgica Sinica*, **1997**, 33, 533-538. (In Chinese)
65. Mao, C. B.; Zhou, L. "Manufacture of BiPbSrCaCuO powder with desired stoichiometry." *Chinese Journal of Low Temperature Physics*, **1996**, 18, 168.
66. Mao, C. B.; Du, Z.; Zhou, L. "Solution-sol-gel (SSG) transition criteria in SSG process of synthesizing highly homogeneous bismuth-based superconductor precursor powder." *Chemistry*, **1996**, 9, 54-57. (In Chinese)
67. Mao, C. B.; Zhou, L.; Sun, X. "Chemical adsorption behavior of bismuth-based superconductor precursor powder." *Acta Physico-Chimica Sinica*, **1996**, 8, 692-697. (In Chinese)
68. Mao, C. B.; Zhou, L.; Sun, X. "The application and role of silver in bismuth-based superconductor." *Rare Metals*, **1996**, 1, 45. (In Chinese)
69. Mao, C. B.; Zhou, L. "Characteristics of coprecipitation processed precursor powder and properties of bismuth-based superconductor." *Chinese Journal of Low Temperature Physics*, **1996**, 17, 187. (In Chinese)
70. Mao, C. B.; Zhou, L.; Du, Z. "Thermodynamics analysis of coprecipitation route to the synthesis of bismuth-based superconductor precursor powder." *Rare Metal Materials and Engineering*, **1996**, 25, 10-16. (In Chinese)
71. Mao, C. B.; Zhou, L. "New progress of phase relation research in Bi-Pb-Sr-Ca-Cu-O system." *Rare Metal Materials and Engineering*, **1995**, 24, 10-20. (In Chinese)
72. Mao, C. B.; Zhou, L. "Manufacture of bismuth-based ceramic superconductor powder." *Rare Metal Materials and Engineering*, **1994**, 23, 1-7. (In Chinese)