

Jun Li, Ph.D.

Department of Polymer Science
The University of Southern Mississippi
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- Education:** Peking University, Beijing, P.R. China, 1987 - 1997
- Ph.D., Polymeric Chemistry, 1997 Advisor: Prof. Hongfei Ha
Thesis: Surface modification of biopolymers by gamma irradiation induced graft polymerization
- M.S., Polymer Chemistry, 1994
Thesis: Radiation synthesis of Sephadex-NASI-BSA and its application in separation of D,L-tryptophan
- B.S., Applied Chemistry, 1991
- Research Highlights:** Polymer synthesis: stimuli-responsive homopolymers/copolymers/hydrogels such as poly(N-isopropyl acrylamide); surface modification of polymer substrates by graft polymerization; fabrication of nanoscale polymer brushes with well-defined properties on silicon wafer by free radical “living” polymerization; enzymatic synthesis; sugar-based low-molecular mass organic gelators/gels with self-assembled nanostructured morphologies; development of biomaterials (hydrogels, films, coatings) from keratin in human hair; improvement of biocompatibility of polymeric materials via self-assembly of amphipathic fungal proteins on surface.
- Research Experience:** **Postdoctoral Research Associate, June. 2004-present. (Advisor: Dr. Sarah E. Morgan)**
Department of Polymer Science
The University of Southern Mississippi
- Development of keratin-based biomaterials;
Modification of polymer surface for biomedical applications
- Postdoctoral Research Associate, Oct. 2002-May 2004. (Advisor: Dr. Jonathan S. Dordick)**
Department of Chemical and Biological Engineering
Rensselaer Polytechnic Institute
- Sugar based low-molecular mass organic gelators/organogels: biocatalytic synthesis, self-assembly and stabilization of nanostructured morphologies;
Generating novel low molecular weight displacers by chemoenzymatic synthesis and polymer supported synthesis for high-throughput proteins purification in ion exchange systems
- Postdoctoral Research Associate, Jan. 2001-Sept. 2002. (Advisor: Dr. Ying C. Chang)**
Department of Chemical Engineering and Materials Science
University of California, Irvine
- Synthesis of homopolymer/block copolymer films at nanoscale on silicon oxide surface by nitroxide mediated free radical polymerization in vapor phase;

Graft polymerization of functional monomers on polymer surface and its immobilization of oligonucleotide embedded microspheres as biochip

STA Fellow(Postdoctoral), Nov. 1999-Nov. 2000. (Advisor: Dr. Masaru Yoshida)

Department of Materials Development
Japan Atomic Energy Research Institute

Surface modification of ion track film

Assistant Professor of Chemistry, July 1997-Nov. 1999.

Department of Technical Physics, Peking University

Synthesis of stimuli-responsive polymers, their application in concentration of metal ions and controlled release

Surface modification of polymer by grafting of functional groups and immobilization of proteins

Teaching (Graduate course):

Radiation Chemistry in polymeric Systems and Applications

Doctoral Thesis Research

- Kyoto University (Japan) with Prof. Yoshito Ikada, 1995-1996

Surface modification of polymer by graft polymerization by UV, plasma or corona, and immobilization of protein.

- Peking University, 1996-1997

Grafting temperature sensitive poly(N-isopropylamide) onto silicone film by means of gamma direct irradiation and pre-irradiation techniques

Grafting of functional groups and immobilization of proteins

M.S. Thesis Research

- Grafting of N-acryloxysuccinimide (NASI) onto Sepharose or Sephadex by gamma irradiation and synthesizing Sepharose-NASI-BSA or Sephadex-NASI-BSA by conjugate reaction to be used as affinity materials for the separation of the enantiomers of tryptophans
- Synthesis of thermal sensitive poly(N-isopropylacrylamide) and its application to the concentration of metal ions
- Synthesis of new type EB curable resins

Publications:

1. Praveen K. Vemula, Jun Li, George John, Enzyme catalysis: tool to make and break amygdalin hydrogelators from renewable resources: a delivery model for hydrophobic drugs, *J. Am. Chem. Soc.* **2006**, 8932-8938
2. George John, Jun Li, Guangyu Zhu, and Jonathan S. Dordick, "Enzymatically-derived sugar containing self-assembled organogels with nanostructured morphologies", *Angew. Chem. Int. Ed.* **2006**, 45, 4772-4775
3. Rahul Misra, Jun Li, Gordon C. Cannon, Sarah E. Morgan, "Nanoscale reduction in surface friction of polymer surfaces modified with Sc3 hydrophobin from *Schizophyllum commune*", *Biomacromolecules* **2006**, 7, 1463-1470
4. Jun Li, Xiaoru Chen, Ying C. Chang, "The vapor phase nitroxide-mediated free radical polymerization for the synthesis of surface-tethered functional polymers and block copolymers", *Langmuir* **2005**, 21, 9562-9567
5. Sarah E. Morgan, Jun Li, "Polycarbonate (PC)" In *Encyclopedia of Chemical Processing*; Sunggyu Lee, Ed.; Taylor & Francis, Inc.: New York, **2005**; Vol. 4, pp. 2277-2290
6. Alp H. Alidedeoglu, Rahul Misra, Jun Li, Sarah E. Morgan, Sarah E. "Surface friction study of hyaluronic acid thin films through lateral force microscopy" *Polymer Preprints* **2006**, 47, 286-287.

7. Jun Li, Chunyong Wu, Sarah E. Morgan, Douglas A. Wicks, Robert A. Smith, "Preparation and characterization of keratin coatings for orthopedic implant applications" *Polymer Preprints* **2005**, 46, 527-528.
8. Chunyong Wu, Jun Li, Douglas A. Wicks, Sarah, E. Morgan, "Fabrication of hydratable keratin from human hair for medical applications" *Polymer Preprints* **2005**, 46, 512.
9. Sarah, E. Morgan, Jun Li, Sonya D. Benson, Rahul Misra, Gordon C. Cannon, "Nanoprobe evaluations of hydrophobin-modified hair" *Polymer Preprints* **2005**, 46, 517-518.
10. Jun Li, Yasunari Maekawa, Tetsuya Yamaki, Masaru Yoshida "Chemical modification of poly(ethylene terephthalate) surface by the selective alkylation of acid salts" *Macromolecular Chem. Phys.* **2002**, 203, 2470-2474.
11. Yasuyuki Suzuki, Jun Li, Yasunari Maekawa, Masaru Yoshida, Katsuta Maeyama, Noriyuki Yonezawa "Conversion of hydrophilic surface of poly(ethylene terephthalate) film to hydrophobic one under hydrophilic conditions" *J. Chem. Soc. Japan, Chem. Indus. Chem.* **2002**, 255-259.
12. Jun Lu, Jun Li, Min Yi, Hongfei Ha "Solvent effect on grafting polymerization of NIPAAm onto cotton cellulose via γ preirradiation method" *Radiat. Phys. Chem.* **2001**, 60, 625-628.
13. Maolin Zhai, Jun Li, Min Yi, Hongfei Ha "The swelling behavior of radiation prepared semi-interpenetrating polymer networks composed of polyNIPAAm and hydrophilic polymers" *Radiat. Phys. Chem.* **2000**, 58, 397-400.
14. Maolin Zhai, Ning Liu, Jun Li, Min Yi, Hongfei Ha "Radiation preparation of PVA-g-NIPAAm in a homogeneous system and its application in controlled release" *Radiat. Phys. Chem.* **2000**, 57, 481-484.
15. Jun Li, Maolin Zhai, Min Yi, Hongcheng Gao, Hongfei Ha "Radiation grafting of thermo-sensitive polyNIPAAm onto silicone rubber" *Radiat. Phys. Chem.* **1999**, 55, 173-178.
16. Jun Li, Xuecheng Ju, Min Yi, Jinshan Wei, Hongfei Ha "Synthesis and application of novel EB curable polyester urethane acrylate modified by linseed oil fatty acid" *Radiat. Phys. Chem.* **1999**, 55, 99-101.
17. Min Yi, Jun Li, Jianbi Zhang, Jianhua Qin, Hongfei Ha "Radiation preparation and application of the linear thermosensitive binary copolymers" *Radiat. Phys. Chem.* **1998**, 52, 261-264.
18. Jun Li, Min Yi, Hongfei Ha "Application of Sepharose and Sephadex modified by means of radiation grafting in Separation of biomolecules" *Radiat. Phys. Chem.* **1995**, 46(4-6), 847-850.
19. Min Yi, Jun Li, Hongfei Ha "Radiation preparation of the water-soluble, temperature sensitive polymers in organic solvents" *Radiat. Phys. Chem.* **1995**, 46(4-6), 855-858.
20. Xun Shen, Jingdong Tian, Jun Li, Xinyuan Li and Yuling Chen "Formation of the excited ferryl species following Fenton reaction" *Free Radical Biological & Medicine* **1992**, 13, 585-592.

10 papers published in Chinese

Patents and Disclosures

1. Ying C. Chang, Jun Li, Xiaoru Chen, US Patent: Synthesis of Functional Polymers and Block Polymers on Silicon Oxide Surfaces by Nitroxide-Mediated Free Radical Polymerization in Vapor Phase, US Patent 6,861,103, 2005
2. Min Yi, Jinshan Wei, Jun Li et al. Chinese Patent: EB curable coating based on vegetable oil modified acrylate and its synthesis, **CN 1136579 A**
3. Jun Li; George John; Jonathan S. Dordick. "Novel Low Molecular Weight Sugar Gelators", 2004
4. Chunyong Wu; Jun Li; Douglas A. Wicks; Sarah E. Morgan. "Soluble and Hydratable Keratinous Proteins and Method of Making", 2004
5. Chunyong Wu; Jun Li; Douglas A. Wicks; Sarah E. Morgan. "Flexible Keratin Film and Method of Making", 2004
6. Chunyong Wu; Jun Li; Douglas A. Wicks; Sarah E. Morgan. "Hydratable Keratin Protein Materials Made by Freeze Drying", 2004
7. Jun Li; Chunyong Wu; Sarah E. Morgan; Douglas A. Wicks. "Keratin Coating for Drug-Eluting Stent and Method of Manufacture, 2005