

Kunlun Hong

R&D Staff
Macromolecular Nanomaterials Group
Center for Nanophase Materials Sciences
Oak Ridge National Laboratory
(865) 574-4974
hongkq@ornl.gov



Education

University of Alabama at Birmingham Material Sciences Ph.D., 2001

Research Interests

Synthesis, characterization and properties of linear and branched polymers and copolymers with controlled structures; polymeric self-assembling; well defined polyelectrolytes; stimuli-responsive polymers; polymer electrolytes for energy storage; conjugated polymers for organic electronics, polymerizations in room temperature ionic liquids.

Professional Experience

10/2008–present	Research Staff Member, Center for Nanophase Materials Sciences Division, Oak Ridge National Laboratory
07/2004–09/2008	Research Staff Member, Chemical Sciences Division and Center for Nanophase Materials Sciences Division, Oak Ridge National Laboratory
04/2002–06/2004	Research Scientist, Chemical Sciences Division, Oak Ridge National Laboratory
05/1996–03/2002	Research Assistant, Department of Chemistry, University of Alabama at Birmingham
10/1995–04/1996	Research Associate, Structure Research Laboratory, University of Science and Technology of China
05/1994–09/1995	Visiting Scientist, Department of Applied Physics, Hong Kong Polytechnic University
09/1991–04/1994	Research Assistant, Structure Research Laboratory, University of Science and Technology of China

Professional and Synergistic Activities

1998–present Member: American Chemical Society:
Member: ACS Polymer Chemistry (POLY) Division
Polymeric Materials Science and Engineering (PMSE) Division

Honors and Awards

2001 Outstanding graduate student award (UAB)
1994 Chinese Academy of Science Outstanding Accomplishment Award (2nd grade) for “Elucidating Polyolefins Microstructures by High-Temperature NMR” (with Qingren Zhu)

Selected Peer-Reviewed Publications (Author or co-author of ~70 articles in refereed journals and books)

- **Hong, K.**; Uhrig, D.; Mays, J. W. “Living Anionic Polymerization” *Current Opinion in Solid State and Material Science*, **1999** 4, 531-538.
- Wise, G. M.; Denn, M. M.; Bell, A. T.; Mays, J. W.; **Hong, K.**; Iatrou, H. “Surface Mobility and Slip of Polybutadiene Melts in Shear Flow” *Journal of Rheology* , **2000**, 44(3), 549-567.
- **Hong, K.**; Mays, J. W. “1,3-Cyclohexadiene Polymers III. Synthesis and Characterization of Poly(1,3-cyclohexadiene-block-styrene) Copolymers” *Macromolecules*, **2001**, 34, 3540-3547.
- **Hong, K.**; Zhang, H. W.; Mays, J. W.; Visser, A. E.; Brazel, C.; Holbrey, J. Reichert, W. M.; Rogers, R. D.
“Conventional Free Radical Polymerization in Room Temperature Ionic Liquids: A Green Approach to Commodity Polymers” *Chemical Communication* **2002**, 1368-1369.
- **Hong, K.**; Zhang, H. W.; Mays, J. W. “Synthesis of Block Copolymers of Styrene and Methyl Methacrylate by Conventional Free Radical Polymerization in Room Temperature Ionic Liquid” *Macromolecules*, **2002**, 35, 5738-5741.

- Zhang, H. W.; **Hong, K.**; Jablonsky, M.; Mays, J. W. “Statistical Free Radical Copolymerizations of Styrene and Methyl Methacrylate in Room Temperature Ionic Liquid” *Chemical Communication* **2003**, 1356-1357.
- Terao, K.; Farmer, B. S.; Nakamura, Y.; Iatrou, H.; **Hong, K.**; Mays, J. W. “Radius of Gyration of Polystyrene Combs and Centipedes in a Theta Solvent” *Macromolecules*, **2005**, *38*, 1447-1450.
- Cheng, G.; Melnichenko, Y. B.; Wignall, G. D.; Hua, F.; **Hong, K.**; Mays, J. W. “Association and structure of thermosensitive comblike block copolymers in aqueous solutions” *Macromolecules*, **2008**, *41*, 4824-4827.
- Lin, J.; Ding, W.; **Hong K.**; Mays J. W.; Xu Z.; Yuan, Y. “Micellization coupled with facilitation of J-aggregation for poly(1,3-cyclohexadiene)-based amphiphilic block copolymers”, *Soft Matter*, **2008**, *4*, 1605-1608.
- Winoto, W.; Shen, Y.; Radosz, M.; Hong, K.; Mays, J. W. “Deuteration Impact on Micellization Pressure and Cloud Pressure of Polystyrene-block-polybutadiene and Polystyrene-block-polyisoprene in Compressible Propane” *J. Phys. Chem.*, **2009**, *113*, 15156-15161
- Yu, X.; Xiao, K.; Chen, J.; Lavrik, N. V.; **Hong, K.**; Sumpter, B. G.; Geohegan, D. B. “High-Performance Field-Effect Transistors Based on Polystyrene-b-Poly(3-hexylthiophene) Diblock Copolymers” *ACS Nano*, **2011**, *5*, 3559–3567
- Li, X.; **Hong, K.**; Liu, Y.; Shew, C.-Y.; Liu, E.; Herwig, K. W.; Smith, G. S.; Zhao, J.; Zhang, G.; Pispas, S.; Chen, W.-R. “Water distributions in polystyrene-block-poly[styrene-g-poly(ethylene oxide)] block grafted copolymer system in aqueous solutions revealed by contrast variation small angle neutron scattering study” *Journal of Chemical Physics*. **2011**, *133*, 144912
- He, L., Hinestrosa, J. P., Pickel, J. M., Zhang, S., Bucknall, D. G., Kilbey II, S. M., Mays, J. W.; **Hong, K.** “Fluorine-containing linear block terpolymers: Synthesis and self-assembly in solution”. *Journal of Polymer Science Part A: Polymer Chemistry*, **2011**, *49*, 414–422.
- Pai, S.; Hammouda, B.; **Hong, K.**; Pozzo, D.; Przybycien, T. M.; Tilton, R. D. “The Conformation of the Poly(ethylene glycol) Chain in Mono-PEGylated Lysozyme and Mono-PEGylated Human Growth Hormone” *Bioconjugate Chemistry*, **2011**, *22*, 2317-2323
- **Hong, K.**; Liu, Y.; Porcar, L.; Liu, D.; Gao, C. Y.; Smith, G. S.; Herwig, K. W.; Cai, S.; Li, X.; Wu, B.; Chen, W.-R.; Liu, L. “Structural response of polyelectrolyte dendrimer towards molecular protonation: the inconsistency revealed by SANS and NMR” *Journal of Physics, Condensed Matter*, **2011**, *23*, in press
- Wang, Y.; Agapov, A. L.; Fan, F.; **Hong K.**; Mays, J. W.; Sokolov, A. P. “Decoupling of ionic transport from segmental relaxation in polymer electrolytes”, *Physical Review Letters*, **2012**, in press

Collaborations During Past Five Years:

Jiaping Lin (East China University of Science and Technology), Stergios Pispas (Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, Greece) Shuiqin Zhou (City University of New York), Jimmy Mays (University of Tennessee and Oak Ridge National Laboratory); Hugh O’Neil (Chemical Science Division and Spallation Neutron Source, Oak Ridge National Laboratory); Kai Xiao, Chengdu Liang, An-Ping Li (CNMS, Oak Ridge National Laboratory); Wei-Ren Chen, Changwoo Do, Yuri B. Melnichenko (Spallation Neutron Source, Oak Ridge National Laboratory), Yun Liu (NIST Center for Neutron Research), Gilbert Brown, Yingzhong Ma (Chemical Science Division, Oak Ridge National Laboratory)

Graduate Advisors:

Graduate Advisor: Prof. Jimmy W. Mays (University of Alabama at Birmingham)
 Postgraduate advisors: David Beach and Phillip Britt (Oak Ridge National Laboratory)

Thesis Advisor and Postgraduate-Scholar Sponsor

Postdoctoral Scholars (recent): total 4 supervised