

## Ming Shao

Postdoctoral Research Associate  
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### Education

Huazhong University of Science and Technology, China	Optoelectronics Engr.	B.S., 2003
Shanghai University, Shanghai, China	Microelectronics Engr.	M.S., 2006
University of Tennessee, Knoxville, Tennessee	Material Sci. & Engr.	Ph.D., 2011

### Professional Experience

2011–p Postdoctoral Research Associate, Functional Hybrid Nanostructures Group, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory (ORNL)

### Professional and Synergistic Activities

2007–p Member, American Physical Society; Materials Research Society  
2006–p Member, Society for Information Display  
2006–p Reviewer, *Journal of Material Chemistry*; *Applied Physics Letter*, *Journal of Applied Physics*; *Physical Review B*; *Solar Energy Materials and Solar Cells*

### Honors and Awards

2007 Second Place, ASM – Oak Ridge Chapter, Poster Competition  
2005 Guanghua Fellowship, Shanghai University, China  
2000 Excellent Student of the Year Award, Huazhong University of Science and Technology, China

### Recent Invited Talks and Contributed Conference Presentations

“Magnetic Field Effects: Triplet-Charge Annihilation versus Triplet-Triplet Annihilation in Organic Semiconductors,” *American Physical Society 2012 Spring Meeting*, Boston, Massachusetts, Feb. 27-Mar. 2, 2012.  
“Magnetic Study of Exciton-Charge Reaction in Organic Phosphorescence-Based Light Emitting Diodes,” *American Physical Society 2008 Spring Meeting*, New Orleans, Louisiana, Mar. 10-14, 2008.  
“Magnetic Response from Photo-induced Intermolecular Excited States in Organic Semiconductors,” *Materials Research Society 2000 Fall Meeting*, Boston, Massachusetts, Dec. 1-8, 2008.

**Publications** (10 publications in refereed journals, 1 book chapter) *Publication list follows CV*

### Research Synopsis

1. Functional organic semiconductor materials and thin film devices, including organic photovoltaics (OPVs), organic field effect transistors (OFETs), organic light emitting diodes (OLEDs).
2. Magnetically controllable optoelectronics processes in organic semiconductor materials and devices, including organic magnetoresistance (MR) and organic spin valves.
3. Fabrication nanoscale electronic devices (solar cells, FETs, sensor, memories, thermoelectric) of inorganic/organic hybrid nanostructures for energy harvest application.
4. Carbon-based nanomaterials (carbon nanotubes and graphene), employ carbon nanotubes and graphene as the transparent conductive electrode of optoelectronic devices.

**Collaborations:** G. Gu (University of TN-Knoxville); B. Hu (University of TN-Knoxville); K. Xiao (Oak Ridge National Laboratory); X. Xu (Oak Ridge National Laboratory).

**Graduate and Postdoctoral Advisors:**

Graduate Advisor: Prof. Bin Hu, Univ. of TN-Knoxville

Postdoctoral Advisor: Dr. Kai Xiao, Oak Ridge National Laboratory

## PUBLICATIONS

**Ming Shao**

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### ***Recent Book Chapters***

M. Shao, B. Hu, A. Gilmore et al, "Single Walled Carbon Nanotubes Based Solution Processed Organic Optoelectronics Devices," Chapter 3.6 in *Luminescence: The Instrumental Key to the Future of Nanotechnology*, 1st Edition, ed., Adam M. Gilmore, ISBN: #9789814241953, Pan Stanford Publishing Pte. Ltd., Singapore (***To be Released Aug. 2012.***)

### ***Refereed Journals***

- M. Shao, L. Yan, D. G. Ma, B. Hu, "Triplet-Charge Annihilation Versus Triplet-Triplet Annihilation in Organic Semiconductors," *Advanced Materials* (Submitted 2012).
- L. Yan, M. Shao, C. F. O. Graeff, I. Hummelgen, D. Ma, "Changing Inter-Molecular Spin-Orbital Coupling for Generating Magnetic Field Effects in Phosphorescent Organic Semiconductors," *Applied Physics Letters* **100**, 013301 (2012).
- M. Shao, L. Yan, H. Pan, I. Ivanov, B. Hu "Giant Magnetic Field Effects on Electroluminescence in Electrochemical Cells," *Advanced Materials* **23**, 2216 (2011).
- M. Shao, M. P. Garrett, X. J. Xu, I. N. Ivanov, S. S. Wong, B. Hu, "Effects of Single Walled Carbon Nanotubes on the Electroluminescent Performance of Organic Light Emitting Diode," *Organic Electronics* **12**, 1098 (2011).
- M. Shao, Y. F. Dai, D. G. Ma, B. Hu, "Electrical Dipole-Dipole Interaction effects on Magnetocurrent in Organic Phosphorescent Materials," *Applied Physics Letters* **99**, 073302 (2011).
- L. Yan, M. Shao, H. Wang, D. Dudis, A. Urbas and B. Hu, "High Seebeck Effects from Hybrid Metal/Polymer/Metal Thin-Film Devices," *Advanced Materials* **23**, 4120 (2011).
- B. Hu, L. Yan, M. Shao, "Magnetic-Field Effects in Organic Semiconducting Materials and Devices," *Advanced Materials* **21**, 1 (2009).
- H. Y. Chen, M. Shao, X. R. Wang, R. G. Sun, "Decay Mechanism of Passive Matrix Organic Light-Emitting Diode Display," *SPIE Proceedings* **5632**, 162 (2005).
- M. Shao, B. Zhou, R. G. Sun et al, "Decay Study on a Passive Matrix Organic Light Emitting Diode Display," *Chinese Journal of Liquid Crystals and Displays* **20**, 401 (2005).
- M. Shao, H. Y. Liu, R. G. Sun, "High Contrast Polymer Light Emitting Diode with Destructive Light Interference Layers" *Chinese Journal of Liquid Crystals and Displays* **20**, 100 (2005).