

Xiaocheng Jiang

EDUCATION

Harvard University Ph.D. in Physical Chemistry	Cambridge, MA May 2011
Peking University B.S. in Chemistry	Beijing, China June 2004

PROFESSIONAL EXPERIENCES

Assistant Professor Tufts University	2015-present Department of Biomedical Engineering
Postdoctoral Fellow MGH/Havard Medical School	2012-2015 BioBEMS Resource Center/Center for Engineering in Medicine

AWARDS AND HONORS

• American Cancer Society Postdoctoral Fellowship, American Cancer Society	2014
• Distinction in Teaching Awards, Harvard University	2005
• Fieser Graduate Research Fellowship, Harvard University	2004
• Chun-Tsung Scholar, founded by Nobel laureate Tsung-Dao Lee	2004
• Outstanding Achievement Award, Peking University Alumni Association in Houston	2003
• Samsung Scholarship, Peking University	2003
• Canon Special Scholarship, Peking University	2002
• Youlong Scholarship, Peking University	2001

RESEARCH INTERESTS

- **Micro-/nano-fluidic biotechnology**
 - point-of-care diagnostics
 - cell/tissue microengineering
 - single-cell level molecular analysis
- **Biofuel cell technology**
 - extracellular matrix engineering for improved fuel cell performance
 - nanotechnology enabled intracellular power extraction from cell metabolism
 - in-vivo biofuel cells for powering implanted biomedical devices
- **Nanowire electronics and nano/bio interfaces**
 - ultrasensitive biomolecular detection and electrophysiological recording
 - ‘smart’ biomaterials with programmed functionality
 - Seamless 3D integration of artificial and living systems

PUBLICATIONS

1. N. Gao, W. Zhou, **X. Jiang**, G. Hong, T-M. Fu and C.M. Lieber, "General strategy for biodetection in high ionic strength solutions using transistor-based nanoelectronic sensors", *Nano Lett.* 15, 2143 (2015).
2. **X. Jiang**, J. Hu, A. M. Lieber, C. S. Jackan, J. C. Biffinger, L. A. Fitzgerald, B. R. Ringeisen, and C. M. Lieber, "Nanoparticle facilitated extracellular electron transfer in microbial fuel cells", *Nano Lett.* 14, 6737 (2014).
3. E. J. H. Lee, **X. Jiang**, M. Houzet, R. Aguado, C. M. Lieber and S. De Franceschi, "Spin-resolved Andreev levels and parity crossings in hybrid superconductor-semiconductor nanostructures", *Nature Nanotechnol.* 9, 79 (2014).
4. **X. Jiang**, J. Hu, E. R. Petersen, L. A. Fitzgerald, C. S. Jackan, A. M. Lieber, B. R. Ringeisen, C. M. Lieber and J. C. Biffinger, "Probing single- to multi-cell level charge transport in *Geobacter sulfurreducens DL-1*", *Nature Commun.* 4, 2751 (2013).
5. E. J. H. Lee, **X. Jiang**, R. Aguado, G. Katsaros, C. M. Lieber and S. De Franceschi, "Zero-bias anomaly in a nanowire quantum dot coupled to superconductors", *Phys. Rev. Lett.* 109, 186802-1-5 (2012).
6. X. Duan, R. Gao, P. Xie, T. Cohen-Karni, Q. Qing, H. S. Choe, B. Tian, **X. Jiang** and C. M. Lieber, "Intracellular recordings of action potentials by an extracellular nanoscale field-effect transistor", *Nature Nanotechnol.* 7, 174 (2012)
7. **X. Jiang**, B. Tian, J. Xiang, F. Qian, G. Zheng, H. Wang, L. Mai and C. M. Lieber, "Rational growth of branched nanowire heterostructures with synthetically encoded properties and function", *Proc. Natl. Acad. Sci. USA* 108, 12212 (2011).
8. **X. Jiang**, J. Hu, L. A. Fitzgerald, J. C. Biffinger, P. Xie, B. R. Ringeisen and C. M. Lieber, "Probing electron transfer mechanisms in *Shewanella oneidensis* MR-1 using a nanoelectrode platform and single cell imaging", *Proc. Natl. Acad. Sci. USA* 107, 16806 (2010).
9. S. W. Nam, **X. Jiang**, Q. Xiong, D. Ham and C. M. Lieber, "Vertically integrated, three-dimensional complementary metal-oxide-semiconductor circuits", *Proc. Natl. Acad. Sci. USA* 106, 21035 (2009).
10. W. I. Park, G. Zheng, **X. Jiang**, B. Tian and C. M. Lieber, "Controlled synthesis of millimeter-Long silicon nanowires with uniform electronic properties", *Nano Lett.* 8, 3004 (2008).
11. **X. Jiang**, Q. Xiong, S. Nam, F. Qian, Y. Li and C. M. Lieber, "InAs/InP radial nanowire heterostructures as high electron mobility devices", *Nano Lett.* 7, 3214 (2007).
12. C. Jia, L. Sun, L. You, **X. Jiang**, F. Luo, Y. Pang and C. Yan, "Selective synthesis of monazite- and zircon-type LaVO_4 nanocrystals", *J. Phys. Chem. B* 109, 3284 (2005).
13. **X. Jiang**, L. Sun and C. Yan, "Ordered nanosheet-based $\text{YBO}_3:\text{Eu}^{3+}$ assemblies: synthesis and tunable luminescent properties", *J. Phys. Chem. B* 108, 3387 (2004).
14. **X. Jiang**, L. Sun, W. Feng and C. Yan, "Acetate mediated growth of uniform drum-like $\text{YBO}_3:\text{Eu}^{3+}$ crystals", *Cryst. Growth Des.* 4, 517 (2004).
15. J. Zhang, L. Sun, **X. Jiang**, C. Liao and C. Yan, "Shape evolution of one-dimensional single-crystalline ZnO nanostructures in a microemulsion system", *Cryst. Growth Des.* 4, 309 (2004).
16. C. Jia, L. Sun, F. Luo, **X. Jiang**, L. Wei and C. Yan, "Structural transformation induced improved luminescent properties for $\text{LaVO}_4:\text{Eu}$ nanocrystals", *Appl. Phys. Lett.* 84, 5305 (2004).
17. **X. Jiang**, C. Yan, L. Sun, Z. Wei, and C. Liao, "Hydrothermal homogeneous urea precipitation of hexagonal $\text{YBO}_3:\text{Eu}^{3+}$ nanocrystals with improved luminescent properties", *J. Solid State Chem.* 175, 245 (2003).
18. Z. Wei, L. Sun, **X. Jiang**, C. Liao and C. Yan, "Correlation between size-dependent luminescent properties and local structure around Eu^{3+} ions in $\text{YBO}_3:\text{Eu}$ nanocrystals: An XAFS study", *Chem. Mater.* 15, 3011 (2003).

CONFERENCE PRESENTATIONS

- “High-throughput sorting and characterization of circulating tumor cells for early cancer diagnostics”, MRS Fall Meeting, Platform Presentation, December 2014.
- “Platelet-targeted microfluidic isolation of circulating tumor cells”, BMES Annual Meeting, Platform Presentation, October 2014.
- “Probing single-bacterium level charge transport in microbial fuel cells”, BMES Annual Meeting, Platform Presentation, October 2014.
- “Microfluidic isolation of circulating tumor cells through the interacting platelets”, Gordon Research Conference: Rare Cells in Circulation, Poster Presentation, August 2014.
- “Understanding electrochemical power extraction from *Shewanella* at single cell level and up”, MRS Fall Meeting, Platform Presentation, November 2009.
- “Heterobranching nanowires: general synthesis and integrated functionality”, MRS Spring Meeting, Platform Presentation, March 2008.
- InAs/InP radial nanowire heterostructures: rational design, controlled synthesis and high performance devices”, MRS Fall Meeting, Platform Presentation, November 2007.
- “One dimensional electron gas in InAs/InP radial nanowire heterostructures”, MRS Fall Meeting, Poster Presentation, November 2007.

REVIEWING ACTIVITIES

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| • Nano Letters | • New Journal of Chemistry |
| • Energy & Environmental Science | • RSC Advances |
| • Nanoscale | • IEEE Electron Device Letters |
| • The Journal of Physical Chemistry | • Macromolecules |

PATENTS

- “Nanoscale Wires, Nanoscale Wire FET Devices, and Nanotube-Electronic Hybrid Devices for Sensing and Other Applications,” US 14/124,816, filed Dec 9, 2013.
- “Branched Nanoscale Wires,” US 8058640, issued Nov 15, 2011.
- “Millimeter-Long Nanowires,” PCT/US2007/024222, filed Dec 4, 2008.