

## Biographical Sketch— Jiaying Huang

Materials Science & Engineering  
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### PROFESSIONAL PREPARATION

- Miller Research Fellow (2004-2007), University of California, Berkeley  
Sponsor: Prof. Peidong Yang
- PhD in Chemistry (2000-2004), University of California, Los Angeles  
Advisor: Prof. Richard B. Kaner
- BS in Chemical Physics (1995-2000), University of Science and Technology of China  
Research Advisor: Prof. Yi Xie

### PROFESSIONAL APPOINTMENTS

2017-                                    Professor of Materials Science and Engineering, Northwestern University  
2013-17                                Associate Professor of Materials Science and Engineering, Northwestern University  
2011-13                                Morris E. Fine Junior Professor in Materials and Manufacturing, Northwestern University  
2007-13                                Assistant Professor of Materials Science and Engineering, Northwestern University

### HONORS AND AWARDS

- Highly Cited Researcher in Chemistry (Thomson Reuters, 2014, 2015, 2016, 2017)
- Humboldt Research Award (Alexander von Humboldt-Foundation, 2016)
- Most Cited Researcher in Materials Science and Engineering (Scopus, Elsevier, 2016)
- JSPS Short-term Invitation Fellowship (Japan Society for the Promotion of Science, 2016)
- Guggenheim Fellowship (John Simon Guggenheim Memorial Foundation, 2014-2015)
- Fissan-Pui-TSI Award (International Aerosol Research Assembly, 2014)
- AVS Prairie Chapter Early Career Award (American Vacuum Society, 2014)
- SME Gustav Olling Outstanding Young Manufacturing Engineer Award (Society of Manufacturing Engineers, 2013)
- Inaugural ISEN Early Career Investigator Award (Initiative for Sustainability and Energy at Northwestern, 2011)
- Searle Center for Teaching Excellence Junior Fellow (Northwestern University, 2011-2012)
- Sloan Research Fellow (The Alfred P. Sloan Foundation, 2011)
- NSF CAREER Award (National Science Foundation, 2010-2015)
- Miller Research Fellow (UC-Berkeley, 2004-2007)
- National Starch and Chemical Award for Outstanding Graduate Research in Polymer Science and Engineering (POLY/PMSE divisions, American Chemical Society, 2006)
- IUPAC Young Chemists Prize (The International Union of Pure & Applied Chemistry, 2005)

### SELECTED EXTERNAL PROFESSIONAL SERVICES

- Member of editorial/advisory board:
  - *Carbon* (American Carbon Society, Elsevier, 2014-)
  - *Journal of Materials Chemistry - A* (Royal Society of Chemistry, 2014-)
  - *Chemistry of Materials* (American Chemical Society, 2015-)
  - *Applied Materials Today* (Elsevier, 2015-)
- Guest editor:
  - *Special issue for Journal of Solid State Chemistry* (Elsevier, 2015)

- *Special issue for Advanced Drug Delivery Review (Elsevier, 2016)*
- *Web theme issue for ACS Nano, ACS Photonics, Chemistry of Materials, Nano Letters, (American Chemical Society, 2016)*

*For professional societies and conferences*

- Member of advisory committee:
  - New Diamond and Nano Carbons Conference (2013 and 2016)
  - International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM) (2014)
- Symposium organizer/leader:
  - The 1<sup>st</sup> Workshop on Hollow Spheres and Related Materials (Qingdao, China, 2017)
  - The 4<sup>th</sup> International Forum on Graphene (Shenzhen, April 2017)
  - The 5<sup>th</sup> International Conference on Multifunctional, Hybrid and Nanomaterials (Lisboa, Portugal, 2017)
  - The 40<sup>th</sup>-44<sup>th</sup> ICMCTF Topical Symposium “Graphene and 2D Nanostructures” (Sponsored by AVS Advanced Surface Engineering Division, 2013-2017)
  - The 1<sup>st</sup> Workshop on Graphene Oxide and Related Materials (Tianjin, China, 2017)
  - 2D Nanosheets and Nanosheet-Based Materials (Pacifichem, 2015)
  - The 1<sup>st</sup>-3<sup>rd</sup> International Symposium on Graphene for Energy and Fuels, ACS Meeting (2012-2014)
  - Functional 2D Layered Materials, MRS meeting (2011)

*For funding agencies*

- Proposal reviewer and panelist: NSF, DOE, ACS-Petroleum Research Fund, Marsden Fund of New Zealand, Research Grants Council of Hong Kong, Korean Research Foundations
- Chair of proposal review panel: European Science Foundation

**PATENTS AND INVENTION DISCLOSURES**

- From Northwestern research: 4 US and 1 Korean patents issued, many more pending
- From prior research: 4 US patents issued

**SELECTED PUBLICATIONS**

Google scholar profile: <http://scholar.google.com/citations?user=sbfLqUAAAAJ&hl=en>

Publications at Northwestern (\* Denotes corresponding author)

1. Chenlong Cui, Alane T.O. Lim and Jiaying Huang\* “A Cautionary Note on Graphene Coatings for Anti-corrosion”, *Nature Nanotechnology*, **2017**, 12, 834
2. Zhao Wang, Rajesh Sahadevan, Che-Ning Yeh, Todd J. Menkhaus, Jiaying Huang\* and Hao Fong\* “Hot-Pressed Polymer Nanofiber Supported Graphene Membrane for High-Performance Nanofiltration”, *Nanotechnology*, **2017**, 28, 31LT02
3. Hongyun Ma, Debin Kong, Yue Xu, Xiaoying Xie, Ying Tao, Zhichang Xiao, Wei Lv, Hee Dong Jang, Jiaying Huang\* and Quan-Hong Yang\* “A Disassembly-reassembly approach to RuO<sub>2</sub>/Graphene Composites for Ultrahigh Volumetric Capacitance Supercapacitor”, *Small*, **2017**, 13, 1701026 (featured on back cover)
4. Victor Brar,\* Andrew R. Koltonow and Jiaying Huang\* “New Discoveries and Opportunities from Two-Dimensional Materials”, *ACS Photonics*, **2017**, 4, 407-411

5. Andrew R. Koltonow and Jiaying Huang\* "Two-dimensional Nanofluidics" *Science*, **2016**, 351, 1395-1396 ([Perspective on the hypothesis, progress and challenges of 2D nanofluidics](#))
6. Xuan Dou, Andrew R. Koltonow, Xingliang He, Hee Dong Jang, Qian Wang,\* Yip-Wah Chung\* and Jiaying Huang\* "Self-dispersed Crumpled Graphene Balls in Oil for Friction and Wear Reduction" *Proceeding of National Academy of Sciences*, **2016**, 13, 1528–1533 ([Cover article, featured in C&EN, Tribology & Lubrication Technology, Fortune.com](#))
7. Jiayan Luo, Jun Gao, Aoxuan Wang, and Jiaying Huang\* "Bulk Nanostructured Materials Based on Two-Dimensional Building Blocks: A Roadmap" *ACS Nano*, **2015**, 9, 9432-9436 ([Perspective advocating the study of new bulk nanostructured materials. Featured in a Spotlight article in Nanowerk.com on Feb 2016](#))
8. Huali Nie, Xuan Dou, Zhihong Tang, Hee Dong Jang and Jiaying Huang\* "High-Yield Spreading of Water-Miscible Solvents on Water for Langmuir-Blodgett Assembly" *Journal of the American Chemical Society*, **2015**, 137, 10683-10688 ([Featured in C&EN, ChemEurope.com. First author H. Nie profiled in the blog "Women in Nanoscience"](#))
9. Xiaoding Wei, Lily Mao, Rafael A. Soler-Crespo, Jeffrey T. Paci, Jiaying Huang,\* SonBinh T. Nguyen\* and Horacio D. Espinosa\* "Plasticity and Ductility in Graphene Oxide - A Novel Mechanochemically Induced Damage-Tolerance Mechanism", *Nature Communications*, **2015**, 6, 8029
10. Jiao-Jing Shao, Kalyan Raidongia, Andrew R. Koltonow and Jiaying Huang\* "Self-assembled Two-dimensional Nanofluidic Proton Channels with High Thermal Stability" *Nature Communications*, **2015**, 6, 7602 ([Featured in Materials360](#))
11. Hee Dong Jang,\* Hyekyoung Kim, Hankwon Chang, Jiwoong Kim, Kee Min Roh, Ji-Hyuk Choi, Bong-Gyoo Cho, Eunjun Park, Hansu Kim,\* Jiayan Luo and Jiaying Huang\* "Aerosol-Assisted Extraction of Silicon Nanoparticles from Wafer Slicing Waste for Lithium Ion Batteries" *Scientific Reports*, **2015**, 5, 9431 ([Featured in C&EN](#))
12. Stanley S. Chou,\* Yi-Kai Huang, Jaemyung Kim, Bryan Kaehr, Brian M. Foley, Ping Lu, Conner Dykstra, Patrick E. Hopkins, C. Jeffrey Brinker, Jiaying Huang\* and Vinayak P. Dravid\* "Controlling the Metal to Semiconductor Transition of MoS<sub>2</sub> and WS<sub>2</sub> in Solution" *Journal of the American Chemical Society*, **2015**, 137, 1742-1745 ([In JACS Spotlights](#))
13. Che-Ning Yeh, Kalyan Raidongia, Jiaojing Shao, Quan-Hong Yang and Jiaying Huang\* "On the Origin of the Stability of Graphene Oxide Membrane in Water" *Nature Chemistry*, **2015**, 7, 166-170 ([Featured in Science, C&EN, Materials Today, Materials360. First author C-N. Yeh profiled in the blog "Women in Nanoscience"](#))
14. Alexander J. Smith, Chen Wang, Dongning Guo, Cheng Sun\*, Jiaying Huang\* "Repurposing Blu-ray Movie Discs as Low-cost, Quasi-random Nanoimprinting Templates for Photon Management" *Nature Communications*, **2014**, 5, 5517 ([Featured in Nature, C&EN, Scientific American, The Washington Post, NBC, PBS, NPR and many other places](#))
15. Alexander J. Smith, Yung-Huang Chang, Kalyan Raidongia, Tzu-Yin Chen, Lain-Jong Li\*, and Jiaying Huang\* "Molybdenum Sulfide Supported on Crumpled Graphene Balls for Electrocatalytic Hydrogen Production" *Advanced Energy Materials*, **2014**, 4, 1400398
16. Cheng Wei Lin, Zhibo Zhao, Jaemyung Kim and Jiaying Huang\* "Pencil Drawn Strain Gauges and Chemiresistors on Paper" *Scientific Reports*, **2014**, 4, 3812 ([Featured in Materials360, Fox News – Tech Take Live](#))

17. Deepti Krishnan, Kalyan Raidongia, Jiaojing Shao and Jiaying Huang\* "Graphene Oxide Assisted Hydrothermal Carbonization of Carbon Hydrates" *ACS Nano*, **2014**, 8, 449-457
18. Alvin T. L. Tan, Jaemyung Kim, Jing-Kai Huang, Lain-Jong Li and Jiaying Huang\* "Seeing 2D Sheets on Arbitrary Substrates by Fluorescence Quenching Microscopy" *Small*, **2013**, 9, 3253-3258 ([Featured on frontispiece](#))
19. Sheneve Z. Butler, Shawna M. Hollen, Linyou Cao, Yi Cui, Jay A. Gupta, Humberto R. Gutiérrez, Tony F. Heinz, Seung Sae Hong, Jiaying Huang, Ariel F. Ismach, Ezekiel Johnston-Halperin, Masaru Kuno, Vladimir V. Plashnitsa, Richard D. Robinson, Rod Ruoff, Sayeef Salahuddin, Jie Shan, Li Shi, Michael G. Spencer, Mauricio Terrones, Wolfgang Windl, Joshua E. Goldberger\* "Progress, Challenges, and Opportunities in Two Dimensional Materials Beyond Graphene" *ACS Nano*, **2013**, 7, 2898-2926 ([Review](#))
20. Stanley S. Chou,\* Bryan Kaehr\*, Jaemyung Kim, Brian Foley, Mrinmoy De, Patrick Hopkins, Jiaying Huang, C. Jeffrey Brinker and Vinayak P. Dravid "Chemically Exfoliated MoS<sub>2</sub> as Near-Infrared Photothermal Agents" *Angewandte Chemie International Edition*, **2013**, 52, 4160-4164
21. Jaemyung Kim, Segi Byun, Alexander J. Smith, Jin Yu, and Jiaying Huang\* "Enhanced Electrocatalytic Properties of Transition Metal Dichalcogenides Sheets by Spontaneous Gold Nanoparticle Decoration", *Journal of Physical Chemistry Letters*, **2013**, 4, 1227-1232 ([Featured in Chemistry World](#))
22. Stanley S. Chou, Mrinmoy De, Jaemyung Kim, Conner Dykstra, Jiaying Huang\*, Vinayak P. Dravid\* "Ligand conjugation of chemically exfoliated MoS<sub>2</sub>", *Journal of the American Chemical Society*, **2013**, 134, 16725-16733
23. Jiayan Luo, Hee Dong Jang and Jiaying Huang\* "Effect of Sheet Morphology on the Scalability of Graphene-Based Ultracapacitors" *ACS Nano*, **2013**, 7, 1464-1471 ([Featured in C&EN](#))
24. Hee Dong Jang,\* Sun Kyung Kim, Hankwon Chang, Jeong-Woo Choi, Jiayan Luo and Jiaying Huang\* "One Step Synthesis of Pt-nanoparticles-Laden Graphene Crumples By Aerosol Spray Pyrolysis and Evaluation of Their Electrocatalytic Activity" *Aerosol Science and Technology*, **2013**, 47, 93-98
25. Jiayan Luo, Jaemyung Kim and Jiaying Huang\* "Material Processing of Chemically Modified Graphene: Some Challenges and Solutions" *Accounts of Chemical Research*, **2013**, 46, 2225-2234 ([Cover article](#))
26. Jaemyung Kim, Laura J. Cote and Jiaying Huang\* "Two Dimensional Soft Material: New Faces of Graphene Oxide" *Accounts of Chemical Research*, **2012**, 45, 1356-1364
27. Kalyan Raidongia and Jiaying Huang\* "Nanofluidic Ion Transport through Reconstructed Layered Materials" *Journal of the American Chemical Society*, **2012**, 134, 16528-16531 ([Featured in Materials Today, IEEE Spectrum](#))
28. Stanley S. Chou, Mrinmoy De,\* Jiayan Luo, Vincent M. Rotello, Jiaying Huang\* and Vinayak P. Dravid\* "Nanoscale Graphene Oxide (nGO) as Artificial Receptors: Implications for Biomolecular Interactions and Sensing" *Journal of the American Chemical Society*, **2012**, 134, 16725-16733
29. Tobin Filleter, Seunghwa Ryu, Keonwook Kang, Jie Yin, Rodrigo A. Bernal, Kwonnam Sohn, Shuyou Li, Jiaying Huang, Wei Cai and Horacio D. Espinosa\* "Nucleation-Controlled Distributed Plasticity in Penta-twinned Silver Nanowires" *Small*, **2012**, 8, 2986-2993

30. Jian Yao Zheng, Yongli Yan, Xiaopeng Wang, Yong Sheng Zhao,\* Jiaxing Huang and Jiannian Yao\* "Wire-on-wire Growth of Fluorescent Organic Heterojunctions" *Journal of the American Chemical Society*, **2012**, 134, 2880-2883 ([Featured in Chemistry World](#))
31. Jiayan Luo, Xin Zhao, Jinsong Wu, Hee Dong Jang, Harold H. Kung and Jiaxing Huang\* "Crumpled Graphene-Encapsulated Si Nanoparticles for Lithium Ion Battery Anodes" *Journal of Physical Chemistry Letters*, **2012**, 3, 1824-1829
32. Vincent C. Tung, Jen-Hsien Huang, Jaemyung Kim, Alexander J. Smith, Chih-Wei Chu, Jiaxing Huang\* "Towards Solution Processed All-Carbon Solar Cells: A Perspective" *Energy & Environmental Science*, **2012**, 5, 7810-7818 ([Featured on inside cover, and in RSC web themed issue: "Rising stars and young nanoarchitects in materials science"](#))
33. Jiayan Luo, Vincent C. Tung, Hee Dong Jang, and Jiaxing Huang\* "Graphene Oxide based Conductive Glue as Binder for Ultracapacitor Electrodes" *Journal of Materials Chemistry*, **2012**, 22, 12993-12996
34. Kwonnam Sohn, Yoon Joo Na, Hankwon Chang, Ki-Min Roh, Hee Dong Jang and Jiaxing Huang\* "Capillary Molding Route to Oil Absorbing Graphene Capsules" *Chemical Communications*, **2012**, 48, 5968-5970 ([Cover article, featured in Chemistry World](#))
35. Yantao Chen, Fei Guo, Ashish Jachak, Sang-Pil Kim, Dibakar Datta, Jingyu Liu, Indrek Kulaots, Charles Vaslet, Hee Dong Jang, Jiaxing Huang, Agnes Kane, Vivek B. Shenoy and Robert H. Hurt\* "Aerosol Synthesis of Cargo-Filled Graphene Nanosacks" *Nano Letters*, **2012**, 12, 1996-2002 ([Featured in C&EN](#))
36. Deepti Krishnan, Franklin Kim, Jiayan Luo, Rodolfo Cruz-Silva, Laura J Cote, Hee Dong Jang and Jiaxing Huang\* "Energetic Graphene Oxide: Challenges and Opportunities" *Nano Today*, **2012**, 7, 137-152 ([invited Review, a top 25 Hot Article](#))
37. Vincent C. Tung, Jaemyung Kim and Jiaxing Huang\* "Graphene Oxide:Single Walled Carbon Nanotube Based Interfacial Layer for All-solution-processed Multijunction Solar Cells in Both Regular and Inverted Geometries" *Advanced Energy Materials*, **2012**, 2, 299-303 ([Featured on frontispiece](#))
38. Li Xiao, Jacqueline Damien, Jiayan Luo, Hee Dong Jang, Jiaxing Huang and Zhen He\* "Crumpled Graphene Particles for Microbial Fuel Cell Electrodes" *Journal of Power Sources*, **2012**, 208,187-192
39. Mark Kruger, Shannon Berg, D'Arcy Stone, Evgheni Strelcov, Dmitriy A. Dikin, Jaemyung Kim, Laura J. Cote, Jiaxing Huang and Andrei Kolmakov\* "Drop Casted Self Assembling Graphene Oxide Membranes for Scanning Electron Microscopy on Wet and Dense Gaseous Samples" *ACS Nano*, **2011**, 5, 10047-10054
40. Jiayan Luo, Hee Dong Jang, Tao Sun, Li Xiao, Zhen He, Alexandros P. Katsoulidis, Mercuri G. Kanatzidis, J. Murray Gibson, and Jiaxing Huang\* "Compression and Aggregation-resistant Particles of Crumpled Soft Sheets" *ACS Nano*, **2011**, 5, 8943-8949 ([cover article, featured in Nature, C&EN, Materials Today and Chemistry & Industry](#))
41. Jaemyung Kim, Vincent C. Tung and Jiaxing Huang\* "Water Processable Graphene Oxide:Single Walled Carbon Nanotube Composite as Anode Modifier for Polymer Solar Cells" *Advanced Energy Materials*, **2011**, 1, 1052-1057 ([Featured on frontispiece](#))

42. Ken C. Pradel, Kwon Nam Sohn and Jiaying Huang\* "Cross-flow Purification of Nanowires" *Angewandte Chemie International Edition*, **2011**, 50, 3412-3416 (Named a "hot paper", featured on frontispiece, and in *ChemViews Magazine*)
43. Fei Guo, Franklin Kim, Tae Hee Han, Vivek Shenoy, Jiaying Huang and Robert H. Hurt\* "Hydration-Responsive Folding and Unfolding in Graphene Oxide Liquid Crystal Phases" *ACS Nano*, **2011**, 5, 8019-8025
44. Andrei Kolmakov,\* Dmitriy A. Dikin, Laura J. Cote, Jiaying Huang, Majid Kazemian Abyaneh, Matteo Amati, Luca Gregoratti, Sebastian Günther and Maya Kiskinova "Graphene Oxide Windows for In-situ Environmental Cell Photoelectron Spectroscopy" *Nature Nanotechnology*, **2011**, 6, 651-657 (Featured in *Nature Nanotechnology – News and Views*)
45. Tae Hee Han, Yi-Kai Huang, Alvin T. L. Tan, Vinayak P. Dravid\* and Jiaying Huang\* "Steam Etched Porous Graphene Oxide Network for Chemical Sensing" *Journal of the American Chemical Society*, **2011**, 133, 15264-15267 (Selected for *JACS* and *Analytical Chemistry* virtual issue on "Nanomaterials in Analytical Chemistry")
46. Vincent C. Tung, Jaemyung Kim, Laura J. Cote, and Jiaying Huang\* "Sticky Interconnect for Solution-Processed Tandem Solar Cells" *Journal of the American Chemical Society*, **2011**, 133, 9262-9265 (Featured in *Nanowerk.com – Spotlight*)
47. Vincent C. Tung, Jen-Hsien Huang, Ian Tevis, Franklin Kim, Jaemyung Kim, Chih-Wei Chu, Samuel I. Stupp, and Jiaying Huang\* "Surfactant-free Water-processable Photoconductive All-carbon Composite" *Journal of the American Chemical Society*, **2011**, 133, 4940-4947 (Featured in *C&EN*, *Renewables International*, and *Fast Company*)
48. Laura J. Cote, Jaemyung Kim, Vincent C. Tung, Jiayan Luo, Franklin Kim, and Jiaying Huang\* "Graphene Oxide as Surfactant Sheets" *Pure and Applied Chemistry*, **2011**, 83, 96-110 (Cover article, invited Perspective for IUPAC special issue commemorating IYC 2011. Chinese translation published in *Industrial Materials* (工業材料雜誌) by ITRI, Taiwan)
49. Jiayan Luo, Laura J. Cote, Vincent C. Tung, Alvin T. L. Tan, Philip E. Goins, Jinsong Wu and Jiaying Huang\* "Graphene Oxide Nanocolloids" *Journal of the American Chemical Society*, **2010**, 132, 17667-17669 (Featured in *Materials Today*)
50. Laura J. Cote, Jaemyung Kim, Zhen Zhang, Cheng Sun\* and Jiaying Huang\* "Tunable Assembly of Graphene Oxide Surfactant Sheets: Wrinkles, Overlaps and Impacts on Thin Film Properties" *Soft Matter*, **2010**, 6, 6096-6101 (Featured on inside cover)
51. Hee Dong Jang\*, Hankwon Chang, Kuk Cho, Franklin Kim, Kwonnam Sohn and Jiaying Huang\* "Co-assembly of Nanoparticles in Evaporating Aerosol Droplets: Preparation of Nanoporous Pt/TiO<sub>2</sub> Composite Particles" *Aerosol Science & Technology*, **2010**, 44, 1140-1145
52. Franklin Kim, Jiayan Luo, Rodolfo Cruz-Silva, Laura J. Cote, Kwonnam Sohn and Jiaying Huang\* "Self-Propagating Domino-Like Reactions in Oxidized Graphite" *Advanced Functional Materials*, **2010**, 20, 2867-2873 (Featured on frontispiece and in *C&EN*, *Materials Views*, *Chemistry & Industry*. Became the subject of a Research Highlight article in *Journal of Materials Chemistry*)
53. Jaemyung Kim, Franklin Kim, Laura J. Cote, Wa Yuan, Kenneth R. Shull and Jiaying Huang\* "Graphene Oxide Sheets at Interfaces" *Journal of the American Chemical Society*, **2010**, 132, 8180-8186 (Featured in *Nature Chemistry*, *Ars Technica*)

54. Jaemyung Kim, Franklin Kim and Jiaying Huang\* "Seeing Graphene-Based Sheets" *Materials Today*, **2010**, 13, 28-38 ([Invited Review, cover article, a top 25 Hot Article](#))
55. Franklin Kim, Laura J. Cote and Jiaying Huang\* "Graphene Oxide: Surface Activity and Two Dimensional Assembly" *Advanced Materials*, **2010**, 22, 1954-1958 ([invited Research News article](#))
56. Jaemyung Kim, Laura J. Cote, Franklin Kim and Jiaying Huang\* "Visualizing Graphene Based Sheets by Fluorescence Quenching Microscopy" *Journal of the American Chemical Society*, **2010**, 132, 260-267 ([Featured in Nature Chemistry, C&EN, Photonics.com](#))
57. Yongsheng Zhao, Peng Zan, Jaemyung Kim, Cheng Sun and Jiaying Huang\* "Patterned Growth of Vertical Organic Nanowire Waveguide Arrays" *ACS Nano*, **2010**, 4, 1630-1636
58. Yongsheng Zhao, Jinsong Wu and Jiaying Huang\* "Vertical Organic Nanowire Arrays: Controlled Synthesis and Chemical Sensors" *Journal of the American Chemical Society*, **2009**, 131, 3158-3159
59. Kwon Nam Sohn, Franklin Kim, Ken Pradel, Jinsong Wu, Yong Peng, Feimeng Zhou and Jiaying Huang\* "Construction of Evolutionary Tree for Morphological Engineering of Nanoparticles" *ACS Nano*, **2009**, 3, 2191-2198 ([Featured in Nature Nanotechnology, Nanowerk.com](#))
60. Laura J. Cote, Rodolfo Cruz-Silva and Jiaying Huang\* "Flash Reduction and Patterning of Graphite Oxide and Its Polymer Composite" *Journal of the American Chemical Society*, **2009**, 131, 11027-11032 ([Featured in C&EN and again its 2009 end of year review, Physics World, Current Science, The Engineer](#))
61. Laura J. Cote, Franklin Kim and Jiaying Huang\* "Langmuir-Blodgett Assembly of Graphite Oxide Single Layers" *Journal of the American Chemical Society*, **2009**, 131, 1043-2049 ([cover article, featured in C&EN twice](#))
62. Dan Li, Jiaying Huang, Richard B. Kaner\* "Synthesis and Applications of Conducting Polymer Nanofibers" *Accounts of Chemical Research*, **2009**, 42, 135-145 ([Cover article](#))
63. Franklin Kim, Kwon Nam Sohn, Jinsong Wu and Jiaying Huang\* "Chemical Synthesis of Au Nanowires in Acidic Solutions" *Journal of the American Chemical Society*, **2008**, 130, 14442-14443
64. Andrea R. Tao, Jiaying Huang and Peidong Yang,\* "Nanocrystal and Nanowire Langmuir-Blodgett" *Accounts of Chemical Research*, **2008**, 41, 1662-1673
65. Shabnam Virji, Bruce H. Weiller, Jiaying Huang\*, Heather Shepherd, Phil Haussmann, Tanya Faltens, Richard Blair, Sarah Tolbert\* and Richard B. Kaner\* "Construction of a Polyaniline Nanofiber Gas Sensor" *Journal of Chemical Education*, **2008**, 158, 1102-1104

Selected Publications Prior to Northwestern

**Postdoctoral research: Dewetting instability and patterning of nanostructures**

1. Ruoxue Yan, Peter Pausauskie, Jiaying Huang and Peidong Yang "Direct Photonic-Plasmonic Coupling and Routing in Single Nanowires" *Proceedings of the National Academy of Sciences*, **2009**, 106, 21045-21050
2. Jiaying Huang, Rong Fan, Stephen Connor and Peidong Yang "One Step Patterning of Aligned Nanowire Arrays by Programmed Dip Coating" *Angewandte Chemie International Edition*, **2007**, 119, 2466-2469
3. Jiaying Huang, Andrea R. Tao, Stephen Connor and Peidong Yang "A General Method for Assembling Single Colloidal Particle Lines", *Nano Letters*, **2006**, 6, 524-529

4. Jiaxing Huang, Franklin Kim, Andrea R. Tao, Stephen Connor and Peidong Yang "Spontaneous Formation of Nanoparticle Stripe Patterns via Dewetting" *Nature Materials*, **2005**, 4, 896-900

**Graduate research: Conducting polymer nanostructures**

5. Jiaxing Huang\* "Syntheses and Applications of Conducting Polymer Polyaniline Nanofibers" *Pure and Applied Chemistry*, **2006**, 78, 15-27 (invited Review)
6. Jiaxing Huang and Richard B. Kaner "The Intrinsic Nanofiber Morphology of Polyaniline" *Chemical Communications*, **2006**, (4), 367-376 (invited Feature Article, cover article)
7. Jiaxing Huang, James A. Moore, J. Henry Acquaye and Richard B. Kaner "A Mechanochemical Route to the Conducting Polymer Polyaniline" *Macromolecules*, **2005**, 38, 317-321
8. Ricky J. Tseng, Jiaxing Huang, Jianyong Ouyang, Jun He, Richard B. Kaner and Yang Yang "Polyaniline Nanofiber/Gold Nanoparticle Non-Volatile Memory" *Nano Letters*, **2005**, 5, 1077-1080
9. Shabnam Virji, Christina Baker, Jiaxing Huang, Richard B. Kaner and Bruce H. Weiller "Polyaniline Nanofiber Composites with Metal Salts: Chemical Sensors for Hydrogen Sulfide" *Small*, **2005**, 1, 624-627
10. Jiaxing Huang and Richard B. Kaner "Flash Welding of Conducting Polymer Nanofibers" *Nature Materials*, **2004**, 3, 783-786
11. Jiaxing Huang and Richard B. Kaner "Nanofiber Formation in the Chemical Polymerization of Aniline: A Mechanistic Study" *Angewandte Chemie International Edition*, **2004**, 43, 5941-5945
12. Jiaxing Huang and Richard B. Kaner "A General Chemical Route to Polyaniline Nanofibers" *Journal of the American Chemical Society*, **2004**, 126, 851-855
13. Jiaxing Huang, Shabnam Virji, Bruce H. Weiller and Richard B. Kaner "Nanostructured Polyaniline Sensors" *Chemistry-A European Journal*, **2004**, 10, 1314-1319 (invited Concept Article)
14. Shabnam Virji, Jiaxing Huang, Richard B. Kaner and Bruce H. Weiller "Polyaniline Nanofibers as Gas Sensors: Response to Classes of Vapors and Comparison to Thin Films" *Nano Letters*, **2004**, 4, 491-496
15. Jiaxing Huang, Shabnam Virji, Bruce H. Weiller and Richard B. Kaner "Polyaniline Nanofibers: Facile Synthesis and Chemical Sensors" *Journal of the American Chemical Society*, **2003**, 125, 314-315
16. Jiaxing Huang, Veronica M. Egan, Hailan Guo, Jeong-Yeol Yoon, Alejandro L. Briseno, Iris E. Rauda, Robin L. Garrell, Charles M. Knobler, Feimeng Zhou and Richard B. Kaner "Enantioselective Discrimination of D- and L-Phenylalanine by Chiral Polyaniline Films" *Advanced Materials*, **2003**, 15, 1158-1161

**Undergraduate research: Synthesis of inorganic nanoparticles**

17. Jiaxing Huang, Yi Xie, Bin Li, Yu Liu, Yitai Qian and Shuyuan Zhang "In-Situ Source-Template-Interface Reaction Route to Semiconductor CdS Submicrometer Hollow Spheres" *Advanced Materials*, **2000**, 12, 808-811
18. Bin Li, Yi Xie, Jiaxing Huang, Yu Liu and Yitai Qian "Sonochemical Synthesis of Nanocrystalline Copper Tellurides  $Cu_7Te_4$  and  $Cu_4Te_3$  at Room Temperature" *Chemistry of Materials*, **2000**, 12, 2614-2616
19. Yi Xie, Jiaxing Huang, Bin Li, Yu Liu and Yitai Qian "A Novel Peanut-like Nanostructure of II-VI Semiconductor CdS and ZnS" *Advanced Materials*, **2000**, 12, 1523-1526



20. Bin Li, Yi Xie, Jiaying Huang, Yitai Qian “Synthesis by Solvothermal Route and Characterization of  $\text{CuInSe}_2$  Nano-whisker and Nanoparticle” *Advanced Materials*, **1999**, *11*, 1456-1459

#### RESEARCH GROUP MEMBERS AND THEIR ACHIEVEMENTS

##### *Former trainees in faculty positions:*

- [Postdoc] Franklin Kim, Associate Professor (independent track), Institute for Integrated Cell-Material Sciences, Kyoto University, Japan
- [Postdoc] Yong Sheng Zhao, Professor, Institute of Chemistry, Chinese Academic of Science, China
- [Postdoc] Rodolfo Cruz-Silva, Associate Professor, Shinshu University, Japan
- [Postdoc] Vincent Tung, Assistant Professor, University of California, Merced, USA
- [Postdoc] Bo Hu, Professor, Xidian University, China
- [Postdoc] Tae Hee Han, Assistant Professor, Hanyang University, South Korea
- [PhD student] Jiayan Luo, 1000 talent Professor, Tianjin University, China
- [Visiting PhD student] Jiao-Jing Shao, Professor, Guizhou University, China
- [Postdoc] Kalyan Raidongia, Assistant Professor, Indian Institute of Technology, Guwahati, India
- [Postdoc] Ying Tao, Associate Professor, Tianjin University, China
- [Postdoc] Victor Hugo R. de Souza, Associate Professor, Federal University of Grande Dourado (UFGD), Brazil
- [Postdoc] Yige Zhou, Professor, Hunan University, China

##### *Former PhD students in industry (6):*

- [PhD student] Laura Cote, Senior Material and Process Engineer, Continental
- [PhD student] Kwon Nam Sohn, Senior Manager, LG Chem
- [PhD student] Jaemyung Kim, Materials Scientist, Merck
- [PhD student] Alexander Smith, Senior Reliability Engineer, Apple
- [PhD student] Deepti Krishnan, Process Engineer, Intel
- [PhD student] Andrew Koltonow, Cardinal Intellectual Property

##### *Significant external awards received by students based on their work in the group*

- NSF-KAUST DIY Electronics Innovation Contest
- Electrochemical Society Nanocarbons Division SES Young Investigator Award
- *Carbon* Journal Prize for Outstanding PhD Thesis in Carbon Research (2 awards in 2014) (typically 1 award per year, an exception was made in 2014 to give 2 awards)
- Josephine de Karman Fellowship (<8 awards per year to PhD candidates in any discipline in North America)
- P.E.O. Scholar Awards (recognizes outstanding female PhD candidates in North America)
- MRS Graduate Student Awards (2 Gold and 2 Silver awards)
- 1000 Plan Program for Young Talents, China
- Chinese Government Award for Outstanding Self-Financed Students Abroad
- Taiwanese Ministry of Education’s Scholarship for Studying Abroad
- NSF East Asia and Pacific Summer Institutes (EAPSI) Fellowship
- NSF Graduate Fellowship (4 awards+1 honorable mention)
- NSF Engineering Innovation Fellowship
- NDSEG Fellowship
- Forbes 30 Under 30
- Clean Energy Trust Consumer Favorite Prize
- Illinois Technology Foundation Fifty For The Future Award
- Phi Beta Kappa