

## Biographical Sketch— Jiaxing 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

### RESEARCH AND TEACHING PHILOSOPHIES

- Create new knowledge, materials and techniques that are potentially useful
- Teach to develop intuition, inspire creativity and bring the best out of students and ourselves

### HONORS AND AWARDS

- Highly Cited Researcher (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)
- 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-)
- *Science China Technological Sciences* (Science China Press/Springer, 2018-)
- *Science China Chemistry* (Science China Press/Springer, 2018-)
- 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 (2014)
- Symposium organizer/leader:
  - Founding organizer of Workshop on Hollow Nanostructured Materials (2017, 2019)
  - Founding organizer of International Workshop on Graphene Oxide and Related Materials (2016, 2017)
  - Founding organizer of International Symposium on Graphene for Energy and Fuels, ACS Meeting (2012-14)
  - Founding organizer of the Northwestern Workshop on Visual Representation of Research (2016, 2018)
  - 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, 2013-17)
  - 2D Nanosheets and Nanosheet-Based Materials (Pacifichem, 2015)
  - 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

**SELECTED RESEARCH TOPICS SINCE 2007: USING CHEMISTRY AND CHEMICAL PRINCIPLES TO SOLVE MATERIALS PROBLEMS**

- 2D nanofluidics
- Cosmetics nanomaterials
- Self-healing anti-corrosion coating for metals
- Optical disc nanophotonics: Information theory based nanopattern design
- Bulk nanostructured materials based on nanoscale building blocks
- Up-cycling of silicon sludge waste for Li ion batteries
- Defect-mediated surface functionalization of 2D metal dichalcogenide sheets
- Crumpled graphene balls: Energy storage, water treatment, and lubrication
- All-carbon photovoltaics
- Graphene oxide sheets as 2D surfactant
- Fluorescence quenching microscopy for seeing 2D materials
- Metal nanocrystals: Synthesis, assembly and bulk processing
- Organic nanocrystals: Orientation-controlled growth and chemical reactivity

## PATENTS AND INVENTION DISCLOSURES

- From Northwestern research: 5 US and 1 Korean patents issued, 12 more pending
- From prior research: 4 US patents issued

## SELECTED PUBLICATIONS

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

Total number of publications: 114; Total number of citations: > 22,000; H-index: 66 (as of Nov. 2017)

Selected publications at Northwestern (\* Denotes corresponding author)

1. Shan Liu, Aoxuan Wang, Qianqian Li, Jinsong Wu, Xianfei Hu, Feiyu Kang, Quan-Hong Yang, Jiaxing Huang\* and Jiayan Luo\* "Crumpled Graphene Balls Stabilized Dendrite-Free Lithium Metal Anodes" *Joule*, **2017**, in press
2. Chenlong Cui, Alane T.O. Lim and Jiaxing Huang\* "A Cautionary Note on Graphene Anti-corrosion Coatings" *Nature Nanotechnology*, **2017**, 12, 834-835 ([Commentary on the fundamental hypothesis, problems and potential solutions in graphene-based anti-corrosion coatings](#))
3. Andrew R. Koltonow and Jiaxing Huang\* "Two-dimensional Nanofluidics" *Science*, **2016**, 351, 1395-1396 ([Perspective on the hypothesis, progress and challenges of 2D nanofluidics](#))
4. Xuan Dou, Andrew R. Koltonow, Xingliang He, Hee Dong Jang, Qian Wang,\* Yip-Wah Chung\* and Jiaxing 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](#))
5. Jiayan Luo, Jun Gao, Aoxuan Wang, and Jiaxing 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](#))
6. Huali Nie, Xuan Dou, Zhihong Tang, Hee Dong Jang and Jiaxing 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"](#))
7. Xiaoding Wei, Lily Mao, Rafael A. Soler-Crespo, Jeffrey T. Paci, Jiaxing 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
8. Jiao-Jing Shao, Kalyan Raidongia, Andrew R. Koltonow and Jiaxing Huang\* "Self-assembled Two-dimensional Nanofluidic Proton Channels with High Thermal Stability" *Nature Communications*, **2015**, 6, 7602 ([Featured in Materials360](#))
9. 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 Jiaxing Huang\* "Aerosol-Assisted Extraction of Silicon Nanoparticles from Wafer Slicing Waste for Lithium Ion Batteries" *Scientific Reports*, **2015**, 5, 9431 ([Featured in C&EN](#))
10. Stanley S. Chou,\* Yi-Kai Huang, Jaemyung Kim, Bryan Kaehr, Brian M. Foley, Ping Lu, Conner Dykstra, Patrick E. Hopkins, C. Jeffrey Brinker, Jiaxing 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](#))

11. Che-Ning Yeh, Kalyan Raidongia, Jiaojing Shao, Quan-Hong Yang and Jiaxing 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")
12. Alexander J. Smith, Chen Wang, Dongning Guo, Cheng Sun\*, Jiaxing 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)
13. Alexander J. Smith, Yung-Huang Chang, Kalyan Raidongia, Tzu-Yin Chen, Lain-Jong Li\*, and Jiaxing Huang\* "Molybdenum Sulfide Supported on Crumpled Graphene Balls for Electrocatalytic Hydrogen Production" *Advanced Energy Materials*, **2014**, 4, 1400398
14. Cheng Wei Lin, Zhibo Zhao, Jaemyung Kim and Jiaxing Huang\* "Pencil Drawn Strain Gauges and Chemiresistors on Paper" *Scientific Reports*, **2014**, 4, 3812 (Featured in *Materials360*, *Fox News – Tech Take Live*)
15. Deepti Krishnan, Kalyan Raidongia, Jiaojing Shao and Jiaxing Huang\* "Graphene Oxide Assisted Hydrothermal Carbonization of Carbon Hydrates" *ACS Nano*, **2014**, 8, 449-457
16. Alvin T. L. Tan, Jaemyung Kim, Jing-Kai Huang, Lain-Jong Li and Jiaxing Huang\* "Seeing 2D Sheets on Arbitrary Substrates by Fluorescence Quenching Microscopy" *Small*, **2013**, 9, 3253-3258 (Featured on frontispiece)
17. Sheneve Z. Butler, Shawna M. Hollen, Linyou Cao, Yi Cui, Jay A. Gupta, Humberto R. Gutiérrez, Tony F. Heinz, Seung Sae Hong, Jiaxing 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)
18. Stanley S. Chou,\* Bryan Kaehr\*, Jaemyung Kim, Brian Foley, Mrinmoy De, Patrick Hopkins, Jiaxing 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
19. Jaemyung Kim, Segi Byun, Alexander J. Smith, Jin Yu, and Jiaxing 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*)
20. Stanley S. Chou, Mrinmoy De, Jaemyung Kim, Conner Dykstra, Jiaxing Huang\*, Vinayak P. Dravid\* "Ligand conjugation of chemically exfoliated MoS<sub>2</sub>", *Journal of the American Chemical Society*, **2013**, 134, 16725-16733
21. Jiayan Luo, Hee Dong Jang and Jiaxing Huang\* "Effect of Sheet Morphology on the Scalability of Graphene-Based Ultracapacitors" *ACS Nano*, **2013**, 7, 1464-1471 (Featured in *C&EN*)
22. Hee Dong Jang,\* Sun Kyung Kim, Hankwon Chang, Jeong-Woo Choi, Jiayan Luo and Jiaxing 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

23. Jiayan Luo, Jaemyung Kim and Jiaxing Huang\* "Material Processing of Chemically Modified Graphene: Some Challenges and Solutions" *Accounts of Chemical Research*, **2013**, 46, 2225-2234 ([Cover article](#))
24. Jaemyung Kim, Laura J. Cote and Jiaxing Huang\* "Two Dimensional Soft Material: New Faces of Graphene Oxide" *Accounts of Chemical Research*, **2012**, 45, 1356-1364
25. Kalyan Raidongia and Jiaxing Huang\* "Nanofluidic Ion Transport through Reconstructed Layered Materials" *Journal of the American Chemical Society*, **2012**, 134, 16528-16531 ([Featured in Materials Today, IEEE Spectrum](#))
26. Stanley S. Chou, Mrinmoy De,\* Jiayan Luo, Vincent M. Rotello, Jiaxing 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
27. 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](#))
28. 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
29. 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"](#))
30. 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
31. 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](#))
32. 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](#))
33. 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](#))
34. 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
35. 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](#))

36. Jaemyung Kim, Vincent C. Tung and Jiaying 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](#))
37. 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](#))
38. 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
39. 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](#))
40. 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"](#))
41. 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](#))
42. 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](#))
43. 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](#))
44. 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](#))
45. 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](#))
46. 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
47. 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](#))

48. Jaemyung Kim, Franklin Kim, Laura J. Cote, Wa Yuan, Kenneth R. Shull and Jiaxing Huang\* "Graphene Oxide Sheets at Interfaces" *Journal of the American Chemical Society*, **2010**, 132, 8180-8186 (Featured in *Nature Chemistry*, *Ars Technica*)
49. Jaemyung Kim, Franklin Kim and Jiaxing Huang\* "Seeing Graphene-Based Sheets" *Materials Today*, **2010**, 13, 28-38 (Invited Review, cover article, a top 25 Hot Article)
50. Franklin Kim, Laura J. Cote and Jiaxing Huang\* "Graphene Oxide: Surface Activity and Two Dimensional Assembly" *Advanced Materials*, **2010**, 22, 1954-1958 (invited Research News article)
51. Jaemyung Kim, Laura J. Cote, Franklin Kim and Jiaxing 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*)
52. Yongsheng Zhao, Peng Zan, Jaemyung Kim, Cheng Sun and Jiaxing Huang\* "Patterned Growth of Vertical Organic Nanowire Waveguide Arrays" *ACS Nano*, **2010**, 4, 1630-1636
53. Yongsheng Zhao, Jinsong Wu and Jiaxing Huang\* "Vertical Organic Nanowire Arrays: Controlled Synthesis and Chemical Sensors" *Journal of the American Chemical Society*, **2009**, 131, 3158-3159
54. Kwon Nam Sohn, Franklin Kim, Ken Pradel, Jinsong Wu, Yong Peng, Feimeng Zhou and Jiaxing Huang\* "Construction of Evolutionary Tree for Morphological Engineering of Nanoparticles" *ACS Nano*, **2009**, 3, 2191-2198 (Featured in *Nature Nanotechnology*, *Nanowerk.com*)
55. Laura J. Cote, Rodolfo Cruz-Silva and Jiaxing 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*)
56. Laura J. Cote, Franklin Kim and Jiaxing 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)
57. Dan Li, Jiaxing Huang, Richard B. Kaner\* "Synthesis and Applications of Conducting Polymer Nanofibers" *Accounts of Chemical Research*, **2009**, 42, 135-145 (Cover article)
58. Franklin Kim, Kwon Nam Sohn, Jinsong Wu and Jiaxing Huang\* "Chemical Synthesis of Au Nanowires in Acidic Solutions" *Journal of the American Chemical Society*, **2008**, 130, 14442-14443
59. Andrea R. Tao, Jiaxing Huang and Peidong Yang,\* "Nanocrystal and Nanowire Langmuir-Blodgett" *Accounts of Chemical Research*, **2008**, 41, 1662-1673
60. Shabnam Virji, Bruce H. Weiller, Jiaxing Huang\*, Heather Shepherd, Phil Hausmann, 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, Jiaxing 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. Jiaxing 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. Jiaxing 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<sub>7</sub>Te<sub>4</sub> and Cu<sub>4</sub>Te<sub>3</sub> at Room Temperature" *Chemistry of Materials*, **2000**, 12, 2614-2616



19. Yi Xie, Jiaying 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 CuInSe<sub>2</sub> Nano-whisker and Nanoparticle" *Advanced Materials*, **1999**, 11, 1456-1459

#### INVITED TALKS

Over 90 invited talks at conferences, workshops and academic, industry and government research institutes since 2013.

#### SELECTED EDUCATIONAL OUTREACH ACTIVITIES

- "Learning Materials Science with Pencils and Paper"  
This lecture/workshop uses hands-on examples, aided by pencils and paper, to teach some basic material principles such as fracture and defects. It also explains some of the material discoveries made in my lab and classrooms. It has been given, in various forms, at the following locations/events:
  - MRSEC summer lectures for REU and RET researchers, Northwestern University, IL (2013 and 2016)
  - Seminars for Murphy Institute Scholars, Northwestern University, IL (2014 and 2015)
  - International Education Forum at Beijing University of Chemical Technology, Beijing, July 2013
- "Curiosity Inspired Discoveries: Some Examples from My Classroom"  
This lecture module introduces innovative course projects done by students in my Northwestern courses, as well as those by students from elsewhere inspired by my previous guest lectures. It has been given, in various forms, at the following locations/events:
  - Department of Molecular Engineering, Kyoto University, Katsura campus, Kyoto, Japan, May 2016
  - Department of Chemistry, Ewha Womans University, South Korea, September 2015
  - Annual Class Trip of Max Planck Institute of Colloids and Interfaces, Klütz, Germany, April 2015
  - School of Engineering, Hanyang University, South Korea, September 2014
  - International Forum for Higher Education, Shanghai University, July 2013
- Panelist for Preparing for Academic Careers in Engineering, Colleague of Engineering, University of Washington, WA, October 2013

#### RESEARCH GROUP MEMBERS AND THEIR ACHIEVEMENTS

*Former trainees (i.e. students and postdocs) in faculty positions (13):*

- [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
- [Visiting PhD student] Xiao-Jiao Zhu, Associate Professor, Anhui University, China
- [Postdoc] Yige Zhou, Professor, Hunan University, China

*Former PhD students in industry (7):*

- [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
- [PhD student] Lily Mao, Process Engineer, Intel

*Former MS trainees (4):*

- [B.S./M.S student] Alvin T.L. Tan, PhD student at MIT  
Thesis title: Imaging 2D Sheets by Fluorescence Quenching Microscopy (2012)
- [B.S./M.S student], Ken Pradel, PhD student at Georgia Institute of Technology  
Thesis title: Cross-flow Purification of Nanowires (2011)
- [MS student] Hao Wei  
Research topic: Light Absorption of Crumpled Graphene Balls (2016)
- [MS student] Lingye Zhou  
Research topic: Light Absorption of Graphene-based sheets (2017)

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

- NSF-KAUST DIY Electronics Innovation Contest (2017)
- ECS Nanocarbons Division SES Young Investigator Award (2016)
- Carbon Journal Prize for Outstanding PhD Thesis in Carbon Research (2 awards in 2014)
- Josephine de Karman Fellowship (<8 awards per year to PhD candidates 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