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Louis D. Rubin Jr. Distinguished Professor
Department of Applied Physical Science
University of North Carolina Chapel Hill
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EDUCATION

Ph.D. Materials Science & Engineering, University of California-Los Angeles, 2007

M.S. Semiconductors Physics, Chinese Academy of Sciences, 2003

B.E. Materials and Photoelectronic Physics, Xiangtan University, 2000

PROFESSIONAL EXPERIENCE

Louis D. Rubin Jr. Distinguished Professor, Department of Applied Physical Science, University of North Carolina Chapel Hill, 2020-present

Professor, Department of Applied Physical Science, University of North Carolina Chapel Hill, 2017-present

Susan J. Rosowski University Professor, University of Nebraska Lincoln, 2015-2017

Professor, Department of Mechanical Engineering, University of Nebraska Lincoln, 2016-2017

Associate Professor, Department of Mechanical Engineering, University of Nebraska Lincoln, 2014-2016

Assistant Professor, Department of Mechanical Engineering, University of Nebraska Lincoln, 2009-2014

Senior Research Scientist, Department of Material Technologies, Agiltron Inc. 2008-2009

Research Scientist, Department of Material Technologies, Agiltron Inc. 2007-2008

RESEARCH CENTERS

Associate Director of *Center for Hybrid Organic Inorganic Semiconductors for Energy (CHOISE)*- An EFRC center funded by DOE, 2018-present

Director of Center of Hybrid Materials Enabled Electronic Technology (CH-MEET), a University of North Carolina's Research Opportunities Initiative (UNC ROI) center, 2018-2021

HONORS AND AWARDS

2021 2021 Highly Cited Researchers™ list from Clarivate™

2020 Highly Cited Researchers™ in both Materials and Chemistry from Clarivate™

2020 Louis D. Rubin Jr. Distinguished Professor

2019 Highly Cited Researchers, by Web of Science

2019 MRS symposium Oral award

2018 Top five researchers in the world in perovskite solar cell research, by Times Higher Education (THE)

2018 Highly Cited Researchers by Clarivate Analytics

2017 Highly Cited Researchers by Clarivate Analytics

2016 Highly Cited Researchers by Thomson Reuters

2016 NUtech Ventures Innovator Award, University of Nebraska, Lincoln
 2015 Highly Cited Researchers by Thomson Reuters
 2015 Postdoc Mentor Award, University of Nebraska, Lincoln,
 2015 College Faculty Research and Creative Activity Award
 2015 Susan J. Rosowski University Professorship
 2015 Lecture in National Academies, Condensed Matter and Materials Research Committee Spring Meeting
 2014 William E. Brooks Engineering Leadership Fellow
 2013 NSF CAREER Award
 2013 Honorable Speaker for the Polymer Science Lecture, Chinese Academy of Science
 2012 Edgerton Innovation Award
 2012 Research Fellow, University of Nebraska Lincoln
 2011 College Faculty Research and Creative Activity Award
 2011 Faculty Research Award, UNL Department of Mechanical Engineering
 2010 DoD Young Investigator Award
 2009 FIRST award, National Science Foundation
 2007 Society for Information Display Student Scholarship Award
 2006 Materials Research Society Graduate Student Awards, MRS Fall

SERVICE TO MATERIAL SOCIETY

Editor Board Member

2020-present Editorial Board Member for Advanced Photonic Materials
 2019-present Editorial Board Member for International Journal of Extreme Manufacturing
 2019-present Editorial Board Member for Cell Reports Physical Science
 2018 “Perovskite solar cells themed issue of *Sustainable Energy & Fuels*.” *Sustainable Energy & Fuels*, Guest editors, Jinsong Huang, Nam-Gyu Park, Yabing Qi, Editor: Katie Lim
 2017-present Editorial Board Member for *Materials Today Energy*
 2014-present Editorial Board Member for *Scientific Reports*

Conference and Symposium Organizer

2021-present Gordon Research Conference, every two years, “Unconventional Semiconductors and Their Applications” Organizers: Matthew Beard, Jinsong Huang, Hanwei Gao and Iván Mora Seró
 2021 EMRS 2021, Symposium on “Novel Materials for Radiation Detection” Paul Sellin, Jinsong Huang
 2021 11th International Conference on Materials for Advanced Technologies, Symposium Advanced Materials for X-ray Scintillation, Singapore,
 2018 “ACS Nanostructured Materials for Energy Harvesting & Storage” symposium at the 256th ACS National Meeting (August 19-23, in Boston), Organizers: Jinsong Huang, Marina S. Leite, Matthew T. McDowell,
 2017 “Symposium ES01—Perovskite Materials and Devices—Progress and Challenges”, **MRS** Fall 2017, Boston, MA, (Nov.26-Dec 1), Organizers: Yabing Qi, Jinsong Huang, Annamaria Petrozza, Huanping Zhou
 2016 “Symposium EP3: Perovskite-Based Photovoltaics and Optoelectronic Devices”, **MRS**

- Spring, Phoenix, AZ (March 28-April 1), Organizers: Kai Zhu, Jinsong Huang, Maria Antonietta Loi, Tsutomu Miyasaka
- 2015 PolyChar 23, Jinsong Huang, Local Organizing Committee:, Lincoln NE
- 2015 EMN Meeting/Quantum Technology Energy Materials Nanotechnology, Beijing, China, April 14 to 17, International Advisory Committee
- 2013 “Symposium B: Organic and Hybrid Photovoltaic Materials and Devices”, MRS spring, San Francisco, CA, (April 1 - April 5), Organizer: Jinsong Huang (leading), Maria Antonietta Loi, Wallace Choy, Yan Shao
- 2005 Symposium assistant, MRS Fall, Boston, MA (2005)

Other society services

- Conference Session Chair: MRS Spring 2018, MRS Fall 2017, MRS Spring 2017, MRS Fall 2016, MRS Spring 2015, E-MRS 2014
- Tutorial lecture in 2015 MRS fall meeting
- Outreach to Nebraskans in Nebraska Museum on “*Sunday with a Scientist*” (>400 attendee), and “*Nebraska Citizens for Science*” for a seminar.
- Reviewer for various journals (*Nature*, *Science*, *Nature Materials*, *Nature Photonics*, *Nature Nanotechnology*, *Nature Energy*, *Nature Communications*, *Science Advances*, *Advanced Materials*, *Energy and Environmental Science*, *ACS Nano*, *Nano Letters* etc)
- Panelist and proposal reviewer for grant agencies (*DOE*, *DOD*, *NSF*, etc).

PUBLICATIONS (Total Google Scholar citation 55,000+ as of Sep 2021, H index: 108)

Highlight of the Science and Nature Publications:

1. Heterojunction Structures for Reduced Noise in Large Area and Sensitive Perovskite X-ray Detectors, Ying Zhou, Liang Zhao, Zhenyi Ni, Shuang Xu, Jingjing Zhao, Xun Xiao and Jinsong Huang*, **Science Advances**, 7, 36, abg6716 (2021) DOI: 10.1126/sciadv.abg6716
2. Stabilizing perovskite-substrate interfaces for high-performance perovskite modules, Shangshang Chen, Xuezheng Dai, Shuang Xu, Haoyang Jiao, Liang Zhao, Jinsong Huang*, **Science**, 20 Aug 2021, Vol. 373, Issue 6557, pp. 902-907 DOI: 10.1126/science.abi6323
3. Defect Compensation in Formamidinium-Cesium Perovskites for Highly Efficient and Stable Solar Modules, Yehao Deng, Shuang Xu, Shangshang Chen, Xun Xiao, Jingjing Zhao, and Jinsong Huang*, **Nature Energy**, accepted (2021)
4. Perovskites in Mesoporous Lead Adsorbents for Non-Toxic Solar Modules, Shangshang Chen, Yehao Deng, Xun Xiao, Shuang Xu, Peter N. Rudd and Jinsong Huang*, **Nature Sustainability**, <https://doi.org/10.1038/s41893-021-00701-x> (2021)
5. Ligand Assisted Growth of Perovskite Single Crystals with Low Defect Density, Ye Liu, Xiaopeng Zheng, Yanjun Fang, Ying Zhou, Zhenyi Ni, Xun Xiao, Shangshang Chen, Jinsong Huang*, **Nature Communications**, 12, Article number: 1686 (2021)
6. Iodine Reduction for Reproducible and High Performance Perovskite Solar Cells and Modules, Shangshang Chen, Xun Xiao, Hangyu Gu, Jinsong Huang*, **Science Advances**, 7, eabe8130, DOI: 10.1126/sciadv.abe8130 (2021).

7. Layer Number Dependent Ferroelasticity in 2D Ruddlesden-Popper Organic-inorganic Hybrid Perovskites, Xun Xiao, Jian Zhou, Kepeng Song, Jingjing Zhao, Yu Zhou, Peter Neil Rudd, Yu Han, Ju Li,* and Jinsong Huang*, **Nature Communications**, 12, 1332 (2021)
8. Response to Comment on 'Resolving spatial and energetic distributions of trap states in metal halide perovskite solar cells.', Zhenyi Ni, Shuang Xu, and Jinsong Huang, **Science**, Vol. 371, Issue 6532, eabd8598 (2021)
9. Crystallization in one-step solution deposition of perovskite films: Upward or downward?, Shangshang Chen, Xun Xiao, Bo Chen, Leah L. Kelly, Jingjing Zhao, Yuze Lin, Michael F. Toney, Jinsong Huang* **Science Advances**, Vol. 7, no. 4, eabb2412 (2021)
10. Large-area and efficient perovskite light-emitting diodes via low temperature blade-coating, Shenglong Chu, Wenjing Chen, Zhibin Fang, Xun Xiao, Yan Liu, Jia Chen, Jinsong Huang, and Zhengguo Xiao*, **Nature Communications**, 12, Article number: 147 (2021)
11. Metallic Surface Doping of Metal Halide Perovskites, Yuze Lin, Yuchuan Shao, Jun Dai, Tao Li, Ye Liu, Xuezheng Dai, Xun Xiao, Yehao Deng, Alexei Gruverman, Xiao Cheng Zeng, Jinsong Huang, **Nature Communications**, 12, Article number: 7 (2021)
12. Trapping Lead in Perovskite Solar Modules with Abundant, Low-cost and Stable Cation Exchange Resins, Shangshang Chen, Yehao Deng, Hangyu Gu, Shuang Xu, Shen Wang, Zhenhua Yu, Volker Blum, and Jinsong Huang*, **Nature Energy**. 5(12):1-9, DOI: 10.1038/s41560-020-00716-2 (2020)
13. Perovskite-Filled Membranes for Flexible and Large Area Direct Conversion X-ray Detector Arrays, Jingjing Zhao, Liang Zhao, Yehao Deng, Xun Xiao, Zhenyi Ni, Shuang Xu, Jinsong Huang*, **Nature Photonics**, DOI:10.1038/s41566-020-0678-x (2020)
14. Simplified Interconnection Structure based on C60/SnO₂-x for All-Perovskite Tandem Solar Cells, Zhenhua Yu, Zhibin Yang, Zhenyi Ni, Yuchuan Shao, Bo Chen, Yuze Lin, Haotong Wei, Zhengshan J. Yu, Zachary Holman and Jinsong Huang*, **Nature Energy**, (2020)
15. Benign Ferroelastic Twin Boundaries in Halide Perovskites for Charge Carrier Transport and Recombination, Xun Xiao, Wenhao Li, Yanjun Fang, Ye Liu, Yuchuan Shao, Shuang Yang, Jingjing Zhao, Xuezheng Dai, Rashid Zia, and Jinsong Huang*, **Nature Communications**, 11, Article number: 2215 (2020)
16. Resolving spatial and energetic distributions of trap states in metal halide perovskite solar cells, Zhenyi Ni, Chunxiong Bao, Ye Liu, Qi Jiang, Wu-Qiang Wu, Shangshang Chen, Xuezheng Dai, Bo Chen, Barry Hartweg, Zhengshan Yu, Zachary Holman, Jinsong Huang*, **Science**, Vol. 367, Issue 6484, pp. 1352-135. (2020)
17. Templated Growth of Oriented Layered Hybrid Perovskites on Quasi-3D perovskites, Jifei Wang, Shiqiang Luo, Yun Lin, Yifu Chen, Yehao Deng, Zhimin Li, Ke Meng, Gang Chen, Tiantian Huang, Si Xiao, Han Huang, Conghua Zhou, Liming Ding, Jun He, Jinsong Huang* and Yongbo Yuan*, **Nature Communications**, 11, 582 (2020)
18. Efficient Sky-blue Perovskite Light-emitting Diodes via Potoluminescence Enhancement, Qi Wang, Xiaoming Wang, Zhi Yang, Ninghao Zhou, Yehao Deng, Jingjing Zhao, Xun Xiao, Peter Rudd, Andrew Moran, Yanfa Yan and Jinsong Huang*, **Nature Communications**, published online
19. Tailoring Solvent Coordination for High-Speed, Room-Temperature Blading of Perovskite Photovoltaic Films, Yehao Deng, Charles H. Van Brackle, Xuezheng Dai, Jingjing Zhao, Bo Chen & Jinsong Huang*, **Science Advances**, published online

20. Enhancing electron diffusion length in narrow-bandgap perovskites for efficient monolithic perovskite tandem solar cells , Zhibin Yang, Zhenhua Yu, Haotong Wei, Xun Xiao, Zhenyi Ni, Bo Chen, Yehao Deng, Severin N. Habisreutinger, Xihan Chen, Kang Wang, Jingjing Zhao, Peter N. Rudd, Joseph J. Berry, Matthew C. Beard & Jinsong Huang*, **Nature Communication**, Vol. 10, Issue 4498, 2019.
21. Stabilizing halide perovskite surfaces for solar cell operation with wide-bandgap lead oxysalts, Shuang Yang, Shangshang Chen, Edoardo Mosconi, Yanjun Fang, Xun Xiao, Congcong Wang, Yu Zhou, Zhenhua Yu, Jingjing Zhao, Yongli Gao, Filippo De Angelis, Jinsong Huang†, **Science**, Vol. 365, Issue 6452, pp. 473-478, 2019.
22. Synthetic Control over Orientational Degeneracy of Spacer Cations Enhances Solar Cell Efficiency in Two-Dimensional Perovskites, Jun Hu, Iain Oswald, Samuel Stuard, Masrur Morshed Nahid, Ninghao Zhou, Olivia Williams, Zhenkun Guo, Liang Yan, Huamin Hu, Zheng Chen, Xun Xiao, Yun Lin, Zhibin Yang, Jinsong Huang, Andrew Moran, Harald Ade, James Neilson, and Wei You*, **Nature Communications**, In press
23. Unveiling the Operation Mechanism of Layered Perovskite Solar Cells , Yun Lin, Yanjun Fang, Jingjing Zhao, Yuchuan Shao, Samuel J. Stuard, Masrur Morshed Nahid, Harald Ade, Qi Wang, Jeffrey E. Shield, Ninghao Zhou, Andrew M. Moran, and Jinsong Huang*, **Nature Communications**, 10, 1008 (2019)
24. Bilateral alkylamine for suppressing charge recombination and improving stability in blade-coated perovskite solar cells, Wu-Qiang Wu, Zhibin Yang, Peter N. Rudd, Yuchuan Shao, Xuezeng Dai, Haotong Wei, Jingjing Zhao, Yanjun Fang, Qi Wang, Ye Liu, Yehao Deng, Xun Xiao, Yuanxiang Feng, Jinsong Huang*, **Science Advances**, 2019, 5, eaav8925.
25. Halide Lead Perovskites for Ionization Radiation Detection, Haotong Wei, Jinsong Huang*, Invited Review, **Nature Communications**, In press
26. Y. Fang, A. Armin, P. Meredith and J. Huang*, Accurate characterization of next generation thin film photodetectors, **Nature Photonics**, 13,1 (2019)
27. B. Chen, T. Li, Q. Dong, E. Mosconi, J. Song, Z. Chen, Y. Deng, Y. Liu, S. Ducharme, A. Gruverman, F.D. Angelis, and J. Huang*, Giant Electrostrictive Response in Lead Halide Perovskites” **Nature Materials**, 2018, 17, 1020–1026.
28. Y. Lin, B. Chen, Y. Fang, J. Zhao, C. Bao, Z. Yu, Y. Deng, P. N. Rudd, Y. Yan, and J. Huang*. Excess Charge-Carrier Induced Instability of Hybrid Perovskites, **Nature Communications**, (2018)9:4981
29. Y. Deng, X. Zheng, Y. Bai, Q. Wang, J. Zhao and J. Huang*, Surfactant-controlled ink drying enables high-speed deposition of perovskite films for efficient photovoltaic modules, **Nature Energy**, 2018, published online doi: 10.1038/s41560-018-0153-9
30. W.-Q. Wu, Q. Wang, Y. Fang, Y. Shao, S. Tang, Y. Deng, H. Lu, Y. Liu, T. Li, Z. Yang, A. Gruverman, J. Huang *, Molecular Doping Enabled Scalable Blading of Efficient Hole-Transport-Layer-free Perovskite Solar Cells, **Nature Communications**, 9, 1625 (2018), doi:10.1038/s41467-018-04028-8
31. J. Zhao, Y. Deng, H. Wei, X. Zheng, Z. Yu, Y. Shao, J. E. Shield, J. Huang *, Strained Hybrid Perovskite Thin Films and Its Impact to Intrinsic Stability of Perovskite Solar Cells, **Science Advances**, 17 Nov 2017: Vol. 3, no. 11, eaao5616, DOI: 10.1126/sciadv.aao5616

32. Z. Chen, Q. Dong, Y. Liu, C. Bao, Y. Fang, Y. Lin, S. Tang, Q. Wang, X. Xiao, Y. Bai, Y. Deng, and J. Huang *, Thin Single Crystal Perovskite Solar Cells to Harvest Below-bandgap Light Absorption, *Nature communications*, **8**, 1890 (2017)
33. H. Wei, D. DeSantis, W. Wei, Y. Deng, D. Guo, T. J. Savenije, L. Cao and J. Huang*, Dopant Compensation in Alloyed CH₃NH₃PbBr₃-xCl_x Perovskite Single Crystals for Gamma-ray Spectroscopy, *Nature Materials*, volume 16, pages 826–833 (2017)
34. X. Zheng, B. Chen, J. Dai, Y. Fang, Y. Bai, Y. Lin, H. Wei, X. C. Zeng and J. Huang *, Defect Passivation using Quaternary Ammonium Halides for High Efficiency Perovskite Solar Cells, *Nature Energy*, volume 2, Article number: 17102 (2017), doi:10.1038/nenergy.2017.102
35. M. He, B. Li, X. Cui, B. Jiang, Y. He, Y. Chen, D.O’Neil, Paul Szymanski, M. A. El-Sayed, J. Huang, and Z. Lin*, Meniscus-Assisted Solution Printing of Large-Grained Perovskite Films for High-Efficiency Solar Cells, *Nature Communications*, volume 8, Article number: 16045 (2017).
36. W. Wei, Y. Zhang, Q. Xu, H. Wei, Y. Fang, Q. Wang, Y. Deng, T. Li, A. Gruverman, L. Cao and J. Huang *, Monolithic Integration of Hybrid Perovskite Single Crystals with Heterogeneous Substrate for Highly Sensitive X-ray Imaging, *Nature Photonics*, *Nature Photonics*, volume 11, pages 315–321 (2017)
37. E. Strelcov, Q. Dong, T. Li, J. Chae, Y. Shao, Y. Deng, A. Gruverman*, J. Huang *, and A. Centrone*, Ferroelasticity Revealed in CH₃NH₃PbI₃ Perovskites, *Science Advances*, *Science Advances*, 14 Apr 2017:Vol. 3, no. 4, e1602165
38. Y. Fang, H. Wei, Q. Dong, and J. Huang *, Quantification of Re-absorption and Re-emission Processes to Determine Photon Recycling Efficiency in Perovskite Single Crystals, *Nature Communications*, volume 8, Article number: 14417 (2017)
39. Y. Yuan, T. Li, Q. Wang, J. Xing, A. Gruverman and J. Huang*, Anomalous Photovoltaic Effect in Organic-Inorganic Hybrid Perovskite Solar Cells, *Science Advances*, *Science Advances*, 17 Mar 2017:Vol. 3, no. 3, e1602164
40. J. Huang *, Y. Shao, Y. Yuan, Y. Yan, Understanding the physical properties of hybrid perovskites for photovoltaic applications, *Nature Reviews Materials*, volume 2, Article number: 17042 (2017)
41. Y. Bai, Q. Dong, Y. Shao, Y. Deng, Q. Wang, L. Shen, D. Wang, W. Wei, and J. Huang *, Enhancing Stability and Efficiency of Perovskite Solar Cells with Crosslinkable Silane Functionalized and Doped Fullerene, *Nature Communications*, 7, Article number: 12806 (2016)
42. H.-H. Fang, S. Adjokatse, H. Wei, J. Yang, G. R. Blake, J. Huang, J. Even, M. Antonietta Loi*, Ultra-high sensitivity of methylammonium-lead tribromide perovskite single crystals to environmental gases, *Science Advances*, 27 Jul 2016: Vol. 2, no. 7, e1600534
43. H. Wei, Y. Fang, P. Mulligan, W. Chirrazzi, H. Fang, C. Wang, B. Ecker, Y. Gao, M. A. Loi, L. Cao, and J. Huang*, *Sensitive X-Ray Detectors Made of Methylammonium-lead Tribromide Perovskite Single Crystals*, *Nature Photonics*, 10, 333-339 (2016)
44. Y. Shao, Y. Yuan and J. Huang*, Reducing Energetic Disorder of Electron Transport Layer to Increase Open-Circuit Voltage in Perovskite Solar Cells, *Nature Energy* 1, 15001 (2016)

45. Y. Fang, Q. Dong, Y. Shao, Y. Yuan, and J. Huang*. Highly Narrow Band Perovskite Single Crystal Photodetectors with Tunable Spectral Response from Blue to Red, *Nature Photonics*, 9(10), 679-686, (2015)
46. C. Bi, Q. Wang, Y. Shao, Y. Yuan, Z. Xiao and J. Huang*, Nonwetting Surface Driven High Aspect Ratio Crystalline Grain Growth for Efficient Hybrid Perovskite Solar Cells, *Nature Communications*, 6, 7747 (2015)
47. Q. Dong, Y. Fang, Y. Shao, P. Mulligan, J. Qiu, L. Cao, and J. Huang*, Electron-Hole Diffusion Lengths > 175 μm in Solution Grown $\text{CH}_3\text{NH}_3\text{PbI}_3$ Single Crystals, *Science*, Vol. 347 no. 6225 pp. 967-970 (2015)
48. Z. Xiao, Y. Yuan, Y. Shao, Q. Wang, Q. Dong, C. Bi, P. Sharma, A. Gruverman and J. Huang*. Giant Switchable Photovoltaic Effect in Organometal Trihalide Perovskite Devices. *Nature Materials*, 14, 193-198 (2015)
49. Y. Shao, Z. Xiao, C. Bi, Y. Yuan and J. Huang*, Origin and Elimination of Photocurrent Hysteresis by Fullerene Passivation in $\text{CH}_3\text{NH}_3\text{PbI}_3$ Planar Heterojunction Solar Cells, *Nature Communications*, 5, 5784 (2014)
50. Y. Yuan, G. Giri, A. Ayzner, A. P. Zoombelt, S. C. B. Mannsfeld, J. Chen, J. Huang* and Z. Bao*, Ultra-high-mobility transparent organic thin film transistors grown by an off-centre spin-coating method, *Nature Communications*, 5, 3005 (2014)
51. F. Guo, B. Yang, Y. Yuan, Z. Xiao, Y. Bi, and J. Huang*, Ultrasensitive Nanocomposite Ultraviolet Detector Enabled by Interfacial Trap-controlled Charge Injection, *Nature Nanotechnology*, 7, 798-802 (2012)
52. Y. Yuan², T. J. Reece, P. Sharma, S. Poddar, S. Ducharme, A. Gruverman, Y. Yang and J. Huang*, Efficiency enhancement in organic solar cells with ferroelectric polymers, *Nature Materials*, 10, 296 (2011)
53. G. Li, V. Shrotriya, J. Huang, Y. Yao, T. Moriarty, K. Emery and Y. Yang.* High-efficiency solution processable polymer photovoltaic cells by self-organization of polymer blends. *Nature Materials*. 4, 864 (2005)

Full publication list:

1. Strain engineering in metal halide perovskite materials and devices: Influence on stability and optoelectronic properties, Mengru Wang, Zhenyi Ni, Xun Xiao, Ying Zhou, Jinsong Huang, *Chemical Physics Reviews* 2 (3), 031302 (2021)
2. Heterojunction Structures for Reduced Noise in Large Area and Sensitive Perovskite X-ray Detectors, Ying Zhou, Liang Zhao, Zhenyi Ni, Shuang Xu, Jingjing Zhao, Xun Xiao and Jinsong Huang*, *Science Advances*, 7, 36, .abg6716 (2021) DOI: 10.1126/sciadv.abg6716
3. Stabilizing perovskite-substrate interfaces for high-performance perovskite modules, Shangshang Chen, Xuezheng Dai, Shuang Xu, Haoyang Jiao, Liang Zhao, Jinsong Huang*, *Science*, 20 Aug 2021, Vol. 373, Issue 6557, pp. 902-907 DOI: 10.1126/science.abi6323
4. Highly Efficient Pure-Blue Light-Emitting Diodes Based on Rb and Cl Alloyed Metal Halide Perovskite, Yang Yang; Shuang Xu; Zhenyi Ni; Charles H. Van Brackle; Liang Zhao; Xun Xiao; Xuezheng Dai; Jinsong Huang, *Advanced Materials*, Volume33, Issue33, August 19, 2021, 2100783

5. Strain engineering in metal halide perovskite materials and devices: Influence on stability and optoelectronic properties, Mengru Wang, Zhenyi Ni, Xun Xiao, Ying Zhou, and Jinsong Huang*, *Chem. Phys. Rev.* 2, 031302 (2021); <https://doi.org/10.1063/5.0044588>
6. Perovskite crystals redissolution strategy for affordable, reproducible, efficient and stable perovskite photovoltaics, Wenhui Feng,, Jin-Feng Liao, Xueqing Chang, Jun-Xing Zhong, Meifang Yang, Tian Tian, Ying Tan, Liang Zhao, Chengxi Zhang, Bing-Xin Lei,*, Lianzhou Wang,*, Jinsong Huang,*, Wu-Qiang Wu,* *Materials Today*, published online
7. Defect compensation in formamidinium–caesium perovskites for highly efficient solar mini-modules with improved photostability, Yehao Deng, Shuang Xu, Shangshang Chen, Xun Xiao, Jingjing Zhao, and Jinsong Huang*, *Nature Energy*, (2021) published online
See news written by Yana Vaynzof: Long live the perovskite module in *Nature Energy* news and views.
8. Acquiring and modeling of Si solar cell transient response to pulsed X-ray, Lei Pan, Praneeth Kandlakunta, Matthew Van Zile, Xuezeng Dai, Jinsong Huang, John W McClory, Lei R Cao, *IEEE Transactions on Nuclear Science*, 68,5, 1152 - 1160 (2021) DOI: 10.1109/TNS.2021.3067193
9. Perovskite Solar Cells with Embedded Homojunction via Nonuniform Metal Ion Doping, Yuze Lin, Tao Li, Ye Liu, Behzad Bahrami, Dengyang Guo, Yanjun Fang, Yuchuan Shao, Ashraful Haider Chowdhury, Qi Wang, Yehao Deng, Alexei Gruverman, Tom J. Savenije, Qiquan Qiao, Jinsong Huang*, *Cell Reports Physical Science*. (2021)
10. Preventing lead leakage with built-in resin layers for sustainable perovskite solar cells, Shangshang Chen, Yehao Deng, Xun Xiao, Shuang Xu, Peter N. Rudd and Jinsong Huang*, *Nature Sustainability*, published online
11. Ligand Assisted Growth of Perovskite Single Crystals with Low Defect Density, Ye Liu, Xiaopeng Zheng, Yanjun Fang, Ying Zhou, Zhenyi Ni, Xun Xiao, Shangshang Chen, Jinsong Huang*, *Nature Communications*, 12, Article number: 1686 (2021)
12. Iodine Reduction for Reproducible and High Performance Perovskite Solar Cells and Modules , Shangshang Chen, Xun Xiao, Hangyu Gu, Jinsong Huang*, *Science Advances*, 7, eabe8130, DOI: 10.1126/sciadv.abe8130 (2021).
13. Layer Number Dependent Ferroelasticity in 2D Ruddlesden-Popper Organic-inorganic Hybrid Perovskites, Xun Xiao, Jian Zhou, Kepeng Song, Jingjing Zhao, Yu Zhou, Peter Neil Rudd, Yu Han, Ju Li,* and Jinsong Huang*, *Nature Communications*, 12, 1332 (2021)
14. Revealing defective nanostructured surfaces and their impact on intrinsic stability of hybrid perovskites, Yuze Lin, Ye Liu, Shangshang Chen, Shen Wang, Zhenyi Ni, Charles H Van Brackle, Shuang Yang, Jingjing Zhao, Zhenhua Yu, Xuezeng Dai, Qi Wang, Yehao Deng, Jinsong Huang*, *Energy and Environmental Science*, 2021, 14, 1563 - 1572, <https://doi.org/10.1039/D1EE00116G>
15. Response to Comment on 'Resolving spatial and energetic distributions of trap states in metal halide perovskite solar cells.', Zhenyi Ni, Shuang Xu, and Jinsong Huang, *Science*, Vol. 371, Issue 6532, eabd8598 (2021)
16. Crystallization in one-step solution deposition of perovskite films: Upward or downward?, Shangshang Chen, Xun Xiao, Bo Chen, Leah L. Kelly, Jingjing Zhao, Yuze Lin, Michael F. Toney, Jinsong Huang* *Science Advances*, Vol. 7, no. 4, eabb2412 (2021)

17. Large-area and efficient perovskite light-emitting diodes via low temperature blade-coating, Shenglong Chu, Wenjing Chen, Zhibin Fang, Xun Xiao, Yan Liu, Jia Chen, Jinsong Huang, and Zhengguo Xiao*, *Nature Communications*, 12, Article number: 147 (2021)
18. Metallic Surface Doping of Metal Halide Perovskites, Yuze Lin, Yuchuan Shao, Jun Dai, Tao Li, Ye Liu, Xuezheng Dai, Xun Xiao, Yehao Deng, Alexei Gruverman, Xiao Cheng Zeng, Jinsong Huang, *Nature Communications*, 12, Article number: 7 (2021)
19. Identifying the Soft Nature of Defective Perovskite Surface Layer and Its Removal Using a Facile Mechanical Approach, Shangshang Chen, Ye Liu, Xun Xiao, Zhenhua Yu, Yehao Deng, Xuezheng Dai, Zhenyi Ni, and Jinsong Huang*, *Joule*, Volume 4, Issue 12, 16 December 2020, Pages 2661-2674
20. Trapping Lead in Perovskite Solar Modules with Abundant, Low-cost and Stable Cation Exchange Resins, Shangshang Chen, Yehao Deng, Hangyu Gu, Shuang Xu, Shen Wang, Zhenhua Yu, Volker Blum, and Jinsong Huang*, *Nature Energy*. 5(12):1-9, DOI: 10.1038/s41560-020-00716-2 (2020)
21. Ultrafast Exciton Transport with a Long Diffusion Length in Layered Perovskites with Organic Cation Functionalization, Xun Xiao, Marvin Wu, Zhenyi Ni, Shuang Xu, Shangshang Chen, Jun Hu, Peter Neil Rudd, Wei You, and Jinsong Huang*, *Advanced Materials*, 42, 2004080 (2020)
22. Comparison of Zr, Bi, Ti, and Ga as metal contacts in inorganic perovskite CsPbBr₃ Gamma-ray Detector, Lei Pan, Yuanxiang Feng, Jinsong Huang, Lei R. Cao*, *IEEE Transactions on Nuclear Science*, (2020), DOI: 10.1109/TNS.2020.3018101.
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Books and Book Chapters

1. Jinsong Huang and Yongbo Yuan, Handbook of Organic Optoelectronic Devices – Vol 1, Perovskite Electronics, in press
2. Liang Sheng, Yanjun Fang, and Jinsong Huang, book chapter, Hybrid Perovskite Based Photodetectors, in Handbook of Organic Optoelectronic Devices – Vol 1, Perovskite Electronics, in press
3. Hui Huang and Jinsong Huang, “*Organic and Hybrid Solar Cells*”. Book published by Springer; 2014 edition (November 25, 2014) ISBN-13: 978-3319108544 ISBN-10: 3319108549
4. Jiarong Lian, Yongbo Yuan, Edwin Peng and Jinsong Huang, “*Interfacial Layers in Organic Solar Cells*”, book chapter in “*Organic and Hybrid Solar Cells*”.
5. Wei Chen, Feng Liu, Ondrej E. Dyck, Gerd Duscher, Huipeng Chen, Mark D. Dadmun, Wei You, Qiquan Qiao, Zhengguo Xiao², Jinsong Huang, Wei Ma, Harald Ade, Jong K. Keum, Adam J. Rondinone, Karren L. More, and Jihua Chen “*Nanophase Separation in Organic Solar Cells*” Book chapter in “*Organic Solar Cells: Materials, Devices, Interfaces and Modeling*”
6. J. Huang, G. Li, J. Li, L. M. Chen and Y. Yang “*Transparent Solar Cells Based on Organic Polymers*”, Book chapter in “*Transparent Electronics: From Synthesis to Applications*”. Wiley publishing. ISBN: 978-0-470-99077-3 (2010)
7. J. H. Li, J. Huang and Y. Yang “*Nanostructured Organic Light-Emitting Devices*”, book chapter in “*Nanotechnology for the Energy Challenge*” Wiley publishing, 2010, ISBN: 978-3-527-32401-9 (2010)

PATENTS (Granted or Pending)

1. Jinsong Huang, Qingfeng Doing, Yang Bai, Cross-linked and Doped Fullerene to Enhance the Stability of Perovskite Devices, US patent filed on 2/10/16
2. Jinsong Huang, Qi Wang, Insulating Tunneling Contact for Efficient and Stable Perovskite Solar Cells, US patent filed on 12/15/15
3. Jinsong Huang, Cheng Bi and Qi Wang, New hole transport materials for perovskite solar cells, US patent filed on 2/11/15
4. Jinsong Huang, Qingfeng Dong, Perovskite Single Crystal Materials and Devices, US patent filed on 12/1/14
5. Jinsong Huang, Yang Bai, Wrapping Perovskite Grains with Silica Shells for Enhancing the Stability and Efficiency of Perovskite Electronic Devices, US patent filed on 2/16/17
6. Jinsong Huang, Haotong Wei, Sensitive x-ray and gamma-ray detectors including perovskite single crystals, WO2017165434A1, updated in 2018
7. Jinsong Huang, Self-powered GHz solution-processed hybrid perovskite photodetectors, US20180075977A1, updated in 2018,
8. Jinsong Huang, Wei Wei, Monolithic integration of hybrid perovskite single crystals with silicon for highly sensitive x-ray detectors, WO2018009712A3, updated in 2018
9. Jinsong Huang, Xiaopeng Zheng, Qi Wang, Yang Bai, Qingfeng Dong, Insulating tunneling contact for efficient and stable perovskite solar cells, WO2017160955A1, updated in 2017
10. Jinsong Huang, Qingfeng Dong, Method for single crystal growth of photovoltaic perovskite

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11. Jinsong Huang, Qingfeng Dong, Yuchuan Shao, Systems and methods for scalable perovskite device fabrication, US9583724B2, granted in 2017
12. Jinsong Huang and Fawen Guo, Nanocomposite Photodetectors, US9685567B2, granted in 2017
13. Jinsong Huang, Fawen Guo, Liang Sheng, Narrowband nanocomposite photodetector, US20170077429A1, 2017
14. Jinsong Huang, Qingfeng Dong, Rui Dong, Yuchuan Shao, Cheng Bi, Qi Wang, and Zhengguo Xiao, Photovoltaic perovskite material and method of fabrication, US9391287B1, granted in 2016
15. Jinsong Huang, Zhengguo Xiao, Compositionally graded bulk heterojunction devices and methods of manufacturing the same, US20160268531A1, updated in 2016
16. Jinsong Huang, Yongbo Yuan, Bin Yang, Photovoltaic Devices, US 8796677 B2, Granted in 2014
17. Jinsong Huang and Yang Yang, Polymer Electronic Devices by all Solution Process, No. WO 2009017700 , Granted in 2011

Pending applications

1. Sensitive x-ray and gamma-ray detectors including perovskite single crystals, US20190140181A1, Jinsong Huang, Haotong Wei, filed in 2016
2. Molecular doping enabled scalable blading of efficient hole transport layer-free perovskite solar cells, US201862661891P, Jinsong Huang, Wuqiang Wu, filed in 2018,
3. Monolithic integration of hybrid perovskite single crystals with silicon for highly sensitive x-ray detectors, US20190162865A1, Jinsong Huang, Wei Wei, filed in 2016
4. Wrapping perovskite grains with silica shells for improving stability and efficiency of perovskite electronic devices, WO2019036093A3, Jinsong Huang, Bai Yang, filed in 2018,
5. Surfactant additive for solution coating large area high efficiency perovskite solar cells and other devices, US20200028022A1, Jinsong Huang, Yehao Deng, filed in 2017
6. Systems and methods for fabricating single crystal photovoltaic perovskite materials and devices incorporating the same, WO2016123399A1, Jinsong Huang, Qingfeng Dong, Filed in 2015
7. Passivation of defects in perovskite materials for improved solar cell efficiency and stability, US20200035418A1, Jinsong Huang, Xiaopeng Zheng
8. Doped polycrystalline perovskite films with extended charge carrier recombination lifetimes and high power conversion efficiencies, WO2019232408A1, filed in 2018, Yuze Lin, Jinsong Huang,
9. Interconnection structures for perovskite tandem solar cells, WO2019227083A1, filed in 2018, Jinsong Huang, Zhenhua Yu
10. Perovskite compositions comprising mixed solvent systems, WO2019195194A1, Filed in 2018, Jinsong Huang, Yehao Deng

Unpublished

11. Lead Sequestration in Perovskite Solar Modules with Abundant, Low-Cost and Stable Cation Exchange Resins, Jinsong Huang, Shangshang Chen

12. Stabilizing Perovskite Solar Cells by Polishing-off the Defective Top Surface Layers/ Removing Surface Defective Layer with Adhesive Tape for Enhanced Efficiency and Stability in Perovskite Solar Cells, Yuze Lin, Ye Liu, Shangshang Chen,
13. Perovskite/silicon tandem photovoltaic device with a rough interface, Jinsong Huang, Bo Chen, Jason Yu, Zak Holman
14. Flexible X-ray Detectors Composing of Hybrid Perovskite Filled Membranes and Methods of Fabrication and Integration into Readout Circuit Board, Jinsong Huang, JingJing Zhao
15. PSCs with near-infrared sensitive layers, Jinsong Huang, Shangshang Chen, Yuze Lin
16. Bilateral Alkylamine additives for PSCs, Jinsong Huang, Wuqiang Wu
17. Conversion of Perovskite Surfaces to Lead Oxysalts for Enhanced Solar Cell Stability, Jinsong Huang, Shuang Yang
18. Jinsong Huang, Cheng Bi and Qi Wang, New hole transport materials for perovskite solar cells, US patent filed on 2/11/15
19. Jinsong Huang, Qingfeng Doing, Yang Bai, Cross-linked and Doped Fullerene to Enhance the Stability of Perovskite Devices, US patent filed on 2/10/16

GRANTSMANSHIP

1. Stabilizing Formamidinium-Cesium Mixed Cation Perovskites, Department of Energy, PI Jinsong Huang with two co-PIs, 07/01/2021 – 6/30/2024, \$1,250,000
2. Tandem PV Perovskite FOA Manufacturing, Department of Energy, co-PI Jinsong Huang, 07/01/2021 – 6/30/2024, Total award \$2 M, UNC share \$450,000
3. Slot-Die Fabrication of Lead-Safe, Robust and Stable Metal Halide Perovskite Modules, Department of Energy, 07/01/2021 – 6/30/2024, Total award \$2.5 M, UNC \$750,000
4. PV PACT: PV Perovskite Accelerator for Commercial Technologies, Department of Energy, co-PI Jinsong Huang, 07/01/2021 – 6/30/2024, Total award \$9 M, UNC share \$348,000
5. Low-cost, High Efficiency, and Flexible Perovskite Solar Modules by Fast Blade Coating, Office of Navy Research, 7/1/2020-10/30/2023, co-PI Jinsong Huang, Total award \$1,250,000, UNC share \$539,998,000
6. Bifacial all-perovskite tandem solar cells for a sustained energy future, National Science Foundation, PI Jinsong Huang and co-PI Bo Chen , 07/01/2021 – 6/30/2024, \$389,998
7. Fabrication of perovskite solar cells, Sponsored by Tandem PV, \$60,000
8. Interaction of Ionizing Radiation with Matter (IIRM) University Research Alliance (URA) DTRA: Defense Threat Reduction Agency through PSU: Penn State University, co-PI Jinsong Huang, 7/1/01/2020–6/30/2025, Total \$25 Million, Huang share: \$1,375,000
9. Fabrication of Perovskite Solar Modules, Navy SBIR, PI Yehao Deng and co-PI Jinsong Huang, 7/8/2020- 9/13/2021, \$72,000,
10. Scalable Manufacturing of Efficient Perovskite/Silicon Tandem Modules, DOE: Department of Energy, Jinsong Huang, PI, co-PI Zak Holman, and Joey Luther, 1.00 Summer Months, 8/01/2019 – 07/30/2022, \$1,875,000
11. Collaborative Research: Surface analytical investigation on stability of organometal trihalide perovskite, PI: Yongli Gao, co-PI Jinsong Huang, National Science Foundation, 07/01/2019 – 06/30/2022, \$608,900

12. The Consortium for Enabling Technologies & Innovation, The Department of Energy's National Nuclear Security Administration (DOE/NNSA), PI Anna Erickson with ~30 co-PIs, \$25,000,000, Huang share \$625,000, 4/1/2019-3/31/2024
13. Solar Panel for Prompt Detection and Identification of Nuclear Detonations, PI Raymond Cao, co-PIs Jinsong Huang, and John McClory, \$1,050,000, Huang share \$330,000, 08/01/2018 – 07/31/2021
14. Center for Hybrid Organic-Inorganic Semiconductors for Energy (CHOISE) EFRC, \$11,750,000, Director Matt Beard, Associate Director Jinsong Huang, and 16 co-PI, 8/1/2018-7/30/2022
15. "Radiation detectors" \$135,000, a contract from a company, 10/1/2018-9/30/2019
16. DURIP: Carrier Dynamics in Perovskite Energy Harvesters, \$373,100.00, PI Jinsong Huang, 10/1/2018-9/30/2019
17. ROI: Center of Hybrid Materials Enabled Electronic Technologies (CH-MEET), Total and Direct \$2,100,000, PI: Jinsong Huang, and six other co-PIs 07/01/2017-06/30/2020
18. "Manufacturing of Solar Cells", Energy Materials Corporation (Prime: Department of Energy (DOE)), Total \$400,000
19. "Understanding Grain-Morphology-Dependent Grain Degradation for Improved Stability in Perovskite Solar Cells", Office of Naval Research (ONR), Total \$480,000, 09/01/2017-08/31/2020
20. "ARI-MA: Trap-Triggered Organic Field Effect Transistor as Low-Cost, Uncooled, Highly Sensitive Solid-State Photodetectors for Radiation Sensing", Department of Homeland Security (DHS), Total: \$750,000, (10/1/2014-09/30/2018) no-cost extension
21. "Collaborative Research: Perovskite Photodetectors with Microcavity Organic Light Emitting Diodes for Sensing Applications" National Science Foundation, Total \$186,428, 6/1/2016-5/30/2019, (PI J. Huang). no-cost extension
22. "Trap Engineering for High Efficiency Planar Heterojunction Hybrid Perovskite Solar Cells" \$450,000, Direct \$317,378, 5/15/2016-5/14/2019, AFOSR (PI J. Huang). no-cost extension
23. "Perovskite Solar Cells", \$150,000, A research contract from EMC, 10/1/2015-9/30/2019, 0 (PI J. Huang) no-cost extension
24. "Understanding the Grain Formation in Doctor-Bladed Perovskite Films for Scalable Fabrication of Efficient Hybrid Solar Cells" Office of Naval Research, Total \$480,000, 7/1/2015/-6/30/2018, (PI J. Huang with co-PI J. Shield). no-cost extension
25. "Combined Macroscopic and Nanoscopic Studies of the Photovoltaic Behavior of Organic Perovskite Solar Cells" National Science Foundation, Total \$480,000, 7/1/2015/-6/30/2018, 0.5 month, (PI J. Huang with co-PI A. Gruverman). no-cost extension
26. "RII Track-2 FEC: Low-Cost, Efficient Next-Generation Solar Cells for the Coming Clean Energy Revolution" National Science Foundation, Total \$4,000,000, 10/1/2015-/7/30/2019, (PI N. P Padture with co-PI J. Huang and 8 other senior personals)
27. "Materials Research Science and Engineering Center: Polarization and Spin Phenomena in Nanoferroic Structures", National Science Foundation, \$9,500,000, 11/1/2014-10/30/2020 (PI: Evgeny Tsymbal with 16 co-PIs, including J. Huang)

28. “Perovskite/Silicon Tandem Solar Cell”, Department of Energy, Total \$1,350,000, 10/1/2014-9/30/18 (PI J. Huang with co-PI Zak Holman) no-cost extension
29. “High Efficiency Low-cost Nanocomposite for Radiation Detection Enabled by Charge Triggered Secondary Charge Injection”, Defense Threat Reduction Agency, Total \$1,750,000, (1/1/2014-9/30/2019 (PI J. Huang with co-PI L. Cao)
30. “Increasing charge separation and extraction by ferroelectric polymer induced persisting electric-field for efficient organic solar cell”, National Science Foundation CAREER, Total \$400,000, 7/1/2013-6/30/2018, (PI. J. Huang) no-cost extension
31. “STTR: Scalable Fabrication of Efficient Flexible Perovskite”, Energy Materials Corporation (Prime: Department of Defense (DOD)), Total \$90,000 (10/1/2017-3/31/2018),
32. “Design and Development of High-Efficiency, Low-Cost Perovskite Solar Cells” Nebraska Center for Energy Science and Research, Total and Direct \$150,000, 1/1/2015-12/31/2016 (PI J. Huang with X. Zeng and Y. Lu)
33. “Organic PV Technology Brief” Electric Power Research Inst (EPRI), Total \$29,614, 7/1/2015-8/30/2015, 0 month, University of Nebraska-Lincoln (PI J. Huang)
34. Supplement: Research Experience for Undergraduate (REU) Amount: \$6000 (2013)
35. “Room-temperature Operation Single-Photon Detectors Based on Nanoparticle Supergated Organic Field Effect Transistors”, National Science Foundation, Total \$300,000, Direct \$230,937 (No cost share, all contributed to Dr. Huang) 4/15/2013-3/31/2016, (PI. J. Huang)
36. Supplement: Research Experience for Undergraduate (REU) Amount: \$5000 (2015)
37. “Scalable and Facile Production of Conformal Graphene as Low-Cost Transparent Electrodes for Organic Photovoltaics” Nebraska Center for Energy Science Research, Direct \$190,000 (No cost share, \$85,000 to Dr. Huang) 1/1/2014 - 12/31/2015, (PI. J. Huang)
38. “A Novel High Quantum Efficiency Mechanism in Organic Photodetector for Sensing the Radiation from Weapons of Mass Destruction”, DTRA Young Investigator Award, Total \$500,000, Direct \$392,287 (No cost share, all contributed to Dr. Huang) 10/1/2010 - 2/15/2016, (PI. J. Huang)
39. “Developing Efficient Pyrite Photovoltaic Cells” Nebraska Center for Energy Science Research, Direct \$150,000 (No cost share, \$85,000 contributed to Dr. Huang), 1/1/2013-12/31/2014, (PI J. Huang with Co-PIs N. Ianno)
40. “Extremely Sensitive Solid-State Ultraviolet Photodetector by Fabricated Low-Cost Solution Process”, Office of Naval Research, Total \$628,183, Direct \$469,899 (No cost share, all contributed to Dr. Huang) 4/1/2012-4/30/2016 (PI. J. Huang)
41. “Tailoring the Energy Levels of Donor and Acceptor in Organic Photovoltaics for Increased Photovoltage with Ferroelectric Dipole Layer”, National Science Foundation, Total \$416,000, Direct \$301,874, (No cost share, \$276,000 contributed to Dr. Huang), 6/1/2012-5/31/2016 (PI. J. Huang and Co-PI S. Ducharme)
42. “Ferroelectric-enhanced Organic Electronics”, NSF EPSCoR Trans-disciplinary, Multi-Institutional Research Clusters Program, Total and Direct \$300,000 (Cost share amount

- \$75,000, \$81,750 contributed to Dr. Huang), 5/1/2012-12/31/2013, (PI S. Ducharme with Co-PIs J. Huang, A. Gruverman, C. L. Cheung, and T. J. Reece)
43. “High-Performance Organic Solar Cells” Nebraska Center for Energy Science Research, Total and Direct \$140,000 (No cost share, \$50,000 contributed to Dr. Huang), 1/1/2012-12/31/2013, (PI S. Ducharme with Co-PIs J. Huang, K. Cole)
 44. “Room-Temperature Ferromagnetic Polymers with Nanoscale Phase Separation and Spin Transport in the Nanodomains”, NSF MRSEC Seeds, Total \$76,744 (No cost share, all contributed to Dr. Huang), 5/1/2010 - 4/30/2012, (PI J. Huang)
 45. “Solution printed OTFT-driven infrared detectors”, Air Force Office of Scientific Research, Total \$100,000 (No cost share, \$30,000 contributed to Dr. Huang), 2/1/2012-10/31/2012, (Agiltron PI S. Jae Ryu with UNL PI J. Huang,)
 46. “Printed Transparent Backplane for Displays and Spatial Light Modulators Based on Organic Thin Film Transistors”, DARPA STTR Phase II, Total \$750,000 (No cost share, \$149,949 contributed to Dr. Huang) 6/23/2010 – 4/30/2012, (Agiltron PI Jae Ryu with UNL PI J. Huang and Stanford PI Z. Bao)
 47. “Nanoantenna-Enhanced Photo Detector (NEOPD)”, Office of Naval Research (ONR) SBIR, Total \$150,000 (\$45,000 contributed to Dr. Huang), 11/15/2011-4/1/2012, (Hitron PI H. Zhang with UNL PI J. Huang)
 48. “Nano-particle Loaded Polymer X-Ray Detector”, Office of the Secretary of Defense (OSD) SBIR, Total \$150,000 (\$45,000 contributed to Dr. Huang), 1/1/2012-6/30/2012, (Agiltron PI A. Greenwald with UNL PI J. Huang)
 49. “Non-restricted research fund support from Industry”, \$40,000 (PI J. Huang)
 50. “Bridge organic/metal interface for high performance organic electronic devices”, Nebraska EPSCoR FIRST Award, Total \$20,000, 4/1/2010 - 3/31/2011 (PI J. Huang)
 51. “Edgerton Innovation Award” \$22,500, (PI. J. Huang)
 52. “Formation of Tandem Plastic Solar Cells by Low-cost Lamination” UNL Layman Award, 6/1/2010-5/31/2011, (PI. J. Huang), Total and Direct \$10,000,
 53. “Proposal Revision Award”, Total and Direct \$50,000, PI Y. Lu and with co-PIs J. Huang, S. Ducharme, X. Zeng. Huang’s share \$12,500, 2014
 54. “Development of High Efficiency, Low-Cost Thin Film Solar Cell Based on Naturally Abundant and Non-toxic Materials”, Nebraska Research Initiative, Total and Direct \$100,000 (No cost share, \$70,000 contributed to Dr. Huang), 7/1/2012-6/30/2014 (PI. J. Huang and Co-PIs C. Exstrom and S. Darveau)
 55. “Printed transparent backplane for displays and spatial light modulators based on organic thin film transistors”, DARPA, STTR, Phase I, \$98,990, 09/05/2008 - 08/30/2009
 56. “Printed transparent backplane for displays and spatial light modulators based on organic thin film transistors”, DARPA, STTR, Phase II, \$749,922, 06/23/2010 - 05/31/2012
 57. “Advanced nanocomposite scintillator for gamma ray detection” DTRA, SBIR, Phase I, \$99,951, 05/08/2008 - 11/07/2008
 58. “Advanced nanocomposite scintillator for gamma ray detection” DTRA, SBIR, Phase II, \$749,227, 10/28/2009 - 10/27/2011,
 59. “Single Wall Carbon Nanotube Printed Integrated Circuits”, DARPA SBIR, Phase I, \$100,000, 03/17/2009 - 11/09/2009

60. “High energy efficient polymer light-emitting diodes by *p-i-n* structure for solid state lighting”, NSF SBIR IIP, Phase I, \$100,000, 2008

INVITED LECTURES AND KEYNOTE SPEECHES

1. Understanding Function of Extrinsic Metal Ions in Perovskites, April 24, 2021 MRS spring conference
2. Toward Large Area Perovskite/Silicon and Perovskite/Perovskite Tandem Cells/Modules, April. 13 2021, tandemPV 2021 Workshop
3. “Progress of p-i-n structure solar cells and minimodules development, nanoGe Spring Meeting 2021 on the Mar 9th – 12th.
4. Scientific Points of View to Commercial Readiness of Perovskite Solar Cell Technologies, Seminar at Materials Science and Engineering Department at Texas A&M University, March 1, 2021
5. Defects in Metal Halide Perovskite Solar Cells, Seminar in Chemical Engineering Department of Wake Forest University, Feb. 3, 2021
6. Perovskite Solar Panels on Your Roof-Are They Ready?, Colloquium in the Department of Material Science and Engineering at Stanford University, January 29, 2021,
7. Defects in Perovskites, International Conference on Advances and Challenges in Perovskite and Organic Solar Cells, Jan 21, 2021
8. “Metal Halide Perovskite Semiconductors for Energy Harvesting-Current Progress and Challenges”, Triangle Hard Matter Workshop, December 7 and concluding on December 8, 2020. online
9. Defect Related Charge Traps and Doping in Perovskites, Solar Cells and Tandem Devices, MRS fall, Dec 3rd 2020, online
10. Addressing Upscaling Issues of Perovskite Technologies, “Innovative Materials for Energy” IME 2020 will take place on December 2nd , 2020 (CET 15.00), online
11. Progress in Understanding Perovskite Materials and Manufacturing of Efficient and Stable Solar Cells and Modules , University of Massachusetts Amherst, Feb. 27, 2020
12. Understand the Stability Limitation of Perovskites and Strategies to Enhance the Stability, MRS fall 2019, Boston, Dec. 6th, 2019
13. High throughput Fabrication of Efficient Perovskite Solar Modules and Tandem Solar Cells, MRS fall 2019, Boston, Dec. 4th, 2019
14. Scalable fabrication of perovskite modules, First Solar, Nov. 19, 2019
15. Photodetectors for radiation sensing, seminar, Georgia Institute of Technology, Nov.5, 2019
16. Multiple Facets Stability Issues of Metal Halide Perovskites and Mitigation Strategies ,PSCO 2019 Lausanne, Switzerland from 30 September to 2 October 2019
17. Growth of Perovskite Single Crystal and Defect Characterization, CHOISE meeting, Duke University, Sep 30, 2019
18. HALIDE PEROVSKITES FOR SENSITIVE, FAST WEAK LIGHT DETECTION, 2019 IEEE Research and Applications of Photonics in Defense Conference (RAPID), 8/19/19, Florida, USA

19. Progress in understanding perovskite materials and manufacturing of efficient and stable solar cells and modules, The 2019 Nankai International Symposium on Solar Energy Conversion, June 18, Tianjin, China
20. HALIDE PEROVSKITES FOR SENSITIVE, FAST WEAK LIGHT DETECTION, 2019 IEEE Research and Applications of Photonics in Defense Conference (RAPID), Aug 19-21, 2019, Miramar Beach FL, USA
21. Defect Passivation in Halide Perovskites, International Conference on Hybrid and Organic Photovoltaics , Roma, Italy, from 2019 May 12th to 2019 May 15th
22. Perovskite materials for radiation detectors, OSU Material week, May 8th, 2019
23. Beyond Solar Cells—Perovskite Radiation Detectors and Light Emitting Diodes, April 22, 2019, MRS spring 2019
24. Unique properties of halide perovskites for applications beyond solar cells, Seminar in NCSU, Nov. 17, 2018
25. Advance in Understanding Defects and Passivation in Perovskite Materials and Devices, MRS fall 2018, November 26, 2018
26. “Halide perovskites: Understanding and Technology Development” Seminar in Duke University, Oct 31, 2018,
27. Perovskite materials and technology, fundamentals and upscaling, Seminar in Florida State University, Oct 17, 2018
28. “Halide perovskites: what do we know and where they will go?” Molecular Foundry Review Meeting, Invited nonuser presentation, Aug.15-16, 2018
29. “Layered perovskites for solar cells, is it really good?”, Institute of Chemistry, Chinese Academy of Science, July 10, 2018
30. “Perovskite solar cells, from lab cells to modules”, National Center for Nanoscience and Technology, China, July 7, 2018
31. “Halide Perovskites, Detectors and Solar Cells”, The 7th Sungkyun International Solar Forum 2018, June 27-29, SKKU, Seoul, Korea
32. “Perovskite materials and devices, 2nd WUT International Symposium on Advanced Optoelectronic Materials and Devices (June 23-25, 2018)
33. “Perovskite solar cells, from lab cells to modules”, Central South University, China, June 22, 2018
34. "Perovskite Solar Cells: From Fundamental Understanding to Commercialization", Gordon Research Conference, June 17-22, Hong Kong, CN, 2018
35. “Scalable fabrication of perovskite modules”, South China University of Technology, June 20th, 2018
36. “Scalable fabrication of perovskite modules”, Shanghai Jiaotong University, June 8th, 2018
37. Advance in Understanding Perovskite Materials for Solar Cell Applications, ACS-China, Hangzhou, China May 5-8,2018
38. Perovskite Materials and Solar Cells, Seminar in Suzhou University, Su Zhou, China, May 4, 2018
39. Halide Perovskites –Solar Energy, Detector Development and Fundamental Understanding, Seminar at University of Tennessee, Knoxville, TN , 4/24/2018

40. Matching the Perovskite Subcell with Silicon Cells for Efficient Tandem Solar Cells, MRS Spring 2018, Phoenix, AZ, April 2018
41. Stability enhancement of perovskite solar cells, MRS Spring 2018, Phoenix, AZ, April 2018
42. Halide Perovskites –Promising Materials for Radiation Detection beyond Solar, Seminar University of Michigan, Oct. 6, 2017
43. Understanding the properties of perovskite for high performance devices, Sep 18-20, PCSO 2017 Oxford, UK
44. Understanding the upper efficiency limit and stability in perovskite solar cells , SPIE Organic Photonics + Electronics , 6 - 10 August 2017, San Diego, California United States , Organic, Hybrid, and Perovskite Photovoltaics XVIII
45. Pushing the detection limit of organic and hybrid perovskites detectors to light and x-ray , SPIE Organic Photonics + Electronics, San Diego, California United States, Organic Sensors and Bioelectronics X , 6 August 2017
46. Continuing to explore the unusual properties of hybrid perovskites,” Meeting: SPIE Organic Photonics + Electronics, 6 - 10 August 2017 , San Diego, California United States, Organic Light Emitting Materials and Devices XXI
47. Understanding Fundamental Properties of Hybrid Perovskites, Telluride Workshop on Solar Solutions to Energy and Environmental Problems, 2017 Telluride, Colorado,
48. How Much Do We Know about Perovskite, April 17-20 MRS Spring 2017, Symposium: ES1: Perovskite Solar Cells—Towards Commercialization, April 18, Phoenix, Arizona, USA
49. Surfaces and Grain Boundaries in Perovskites-Ion Migration and Stability, MRS Fall 2016, 11/27-12/2, Boston, MA
50. Efficiency and Stability of Perovskite Solar Cells, 11th International Conference on Electroluminescence and Organic Electronics which is scheduled to be held in Raleigh, NC, USA on October 2-Oct 6, 2016.
51. Enhancing the Moisture Stability of Perovskite Solar Cells with Modified Electron Transport Layers, September 26th –28th 2016 Genova, Italy. the second annual conference on Perovskite Solar Cells and Optoelectronics (PSCO-16),
52. “Perovskite based high performance photodetectors and radiation detectors,” SPIE Organic Photonics + Electronics , 28 August - 1 September 2016 , San Diego, California United States
53. Achieving high performance Perovskite solar cells: materials, morphology, interface, and energy disorder, SPIE Nanoscience + Engineering , 28 August - 1 September 2016, San Diego, California United States
54. Achieving high performance Perovskite solar cells: materials, morphology, interface, and energy disorder, SPIE Nanoscience + Engineering , 28 August - 1 September 2016, San Diego, California United States
55. August 21-25, ACS meeting Symposium of “Polymer and Polymer Hybrid Electronics and Biosensors” Philadelphia, Pennsylvania. 2D Materials: Graphene and Beyond, and Their Device Applications,
56. The Birth and Death of Perovskite Grains, Office of Naval Research, Workshop on Perovskite Solar Cell Stability , University of Washington, Kane Hall Room 110, August 11 & 12, 2016

57. Hybrid Perovskite Solar Cell Progress-Materials and Device Physics, 2016 Hybrid Electronic & Photonic Materials and Phenomena" Gordon Research Conference. June 19 - 24, 2016 Hong Kong
58. Why Do Hybrid Perovskites Work So Well For Solar Cells and Applications Beyond?, June 11-14, 2016, Nature Conference on Materials for Energy 2016, in Wuhan, China
59. Ion Migration in Hybrid Perovskite Materials and Influence to Photovoltaic, May 25 (Wed) to May 27 (Fri), 2016, The 5th Sungkyun International Solar Forum 2016, Seoul, Korea
60. May 23, 2016, Brown workshop Microstructural Evolution in Organic-Inorganic Hybrid Perovskite Thin Films
61. "Grain Morphology Engineering in Perovskite Solar Cells for High Efficiency and Long Stability" March 28-April 1, 2016, MRS, Phoenix,
62. Understanding of perovskite properties using single crystals, MARCH 17, 2016 BALTIMORE, APS meeting,
63. Perovskite single crystals and application, March 13-16, 2016 San Diego, Invited talk at the Applications of Polymer Surfaces & Interfaces Symposium, ACS National Meeting in San Diego, March 13-17, 2016
64. "Understanding of perovskite materials", Feb. 26, 2016, Seminar at University of Houston
65. "Perovskite solar cells, status and the future," Feb. 15, 2016, Seminar at NCSU
66. "Perovskite electronics", Feb 11, 2016, Seminar at University of North Carolina Chapel Hill
67. "*Perovskite materials solar cells*," Seminar at Huazhong Science and Technology University, Wuhan, China, Dec. 23th, 2015.
68. "*What do we know about perovskite*," Department seminar at South Central University, Dec 22, 2015
69. "*What do we know about perovskite*," Department seminar at Beijing JiaoTong University, Dec. 18th, 2015
70. "*Influence of Low Cost Solution Process on Electronic Properties and Device Performances of Organic and Hybrid Perovskite Materials* ", Symposium BB, MRS2015 Fall meeting (November 29 - December 4, 2015, Boston, Massachusetts, USA
71. "*Hybrid Perovskite Single Crystals- A New Platform for High Performance Devices and Fundamental Understanding*" Symposium NN, MRS2015 Fall meeting (November 29 - December 4, 2015 Boston, Massachusetts, USA
72. "*Tutorial NN: New Developments in Perovskite Solar Cells—From Fundamentals to Applications*" MRS2015 Fall meeting MRS invited Tutorial talk
73. "*Why Perovskites Work So Well for Photovoltaic Cells*" Department seminar at University of Florida, Oct. 26, 2015
74. "*Material Morphology and Defects in Hybrid Perovskite Solar Cells*" Department seminar at University of Wisconsin-Madison, Oct. 15, 2015
75. "*Morphology dependent carrier diffusion length in hybrid perovskite materials*", The 26th. International Conference on Amorphous and Nanocrystalline Semiconductors, Aachen, Germany Sep 13.-18th, 2015
76. "*Perovskite Solar Cell Progress at UNL*", Invited Talk at Brown University, Sep 11, 2015
77. "*High grain, low noise organic and nanoelectronic photodetectors*", SPIE Optics +

Photonics 2015, San Diego, Aug. 13, 2015

78. 8:35 am: *Sensitive organometal trihalide perovskite photodetectors with high gain and low noise for sub pW/cm² light detection at room temperature*, Jinsong Huang, Yanjun Fang, Univ. of Nebraska-Lincoln (USA) [9568-217] SPIE Optics + Photonics 2015, San Diego, Aug. 10, 2015
79. *“Hybrid Perovskites Material for Energy Harvesting and Sensing”* UNL Materials for Energy Systems Symposium, July 21, 2015
80. *“Engineering Crystalline Grain of Hybrid Perovskites for High Efficiency Solar Cells and Beyond”*, The International Photonics and OptoElectronics Meetings 2015 (POEM 2015), June 16th to 19th, 2015 at Wuhan China.
81. *“Ion Transport in Hybrid Organic-Inorganic Hybrid Perovskite”*, the 20th international conference on Solid State Ionics (SSI-20), Keystone, Colorado, USA from June 17th, 2015
82. *“Hybrid Perovskite Solar Cells-Material Process, Device, and Understanding of the Unique Properties”*, National Academies, Condensed Matter and Materials Research Committee Meeting, June 16th, 2015, Washington DC
83. *“Progress of pervskite materials and understanding”* Department seminar at Shenzhen University, June 8th, 2015
84. *“Perovskite solar cell research status”* Department seminar at South Central University, June 1st, 2015
85. *“Understand the fundamental electronic processes in hybrid perovskite solar cells ”* Seminar at Huazhong Science and Technology University, Wuhan, China, June 1st, 2015.
86. *“Diffusion Length in Organometal Trihalide Perovskites”*, Seminar in the Department of Physics, Peking University, China, May 27, 2015
87. *“Understanding Fundamental Properties of Organometal Trihalide Perovskites for Solar Cell Application”*, Department Seminar in the Department of Material Science and Engineering, NCSU, Feb 19, 2015
88. *“Scaling of Diffusion Length in Organometal Trihalide Perovskites for Solar Cell Application and Beyond”*, Department Seminar in the Department of Material Science and Engineering, Purdue University, Feb. 12, 2015
89. *“Perovskite Solar Cells Progress”*, Department Seminar in the Department of Material Science and Engineering, UCLA, Oct. 31st, 2014
90. *“Charge Traps Enabled High Gain Photodetectors”*, Department Seminar in the Department of Mechanical Engineering, Ohio State University, Sep 3rd, 2014
91. *“Highly efficient perovskite solar cells by a low temperature solution process and its working principle”*, Aug. 20, 2014 SPIE Optics and Photonics, San Diego, CA, USA
92. *“Charge trap engineering for highly sensitive photodetectors”* Aug. 19, 2014 SPIE Optics and Photonics, San Diego, CA, USA
93. *“Improving Perovskite Crystal Quality for High Device Performance”* , E-MRS, May 27, 2014, Lille, France
94. *“Improving Perovskite Crystal Quality for High Device Performance and It Operation Principle”* , Seminar in Central South University, Changsha, Hunan, China, May 13, 2014
95. *“The development of organic ferroelectric photovoltaic”* Seminar in Institute of Semiconductor, Chinese Academy of Science, Beijing, China, May 5, 2014

96. “*Ferroelectric polymer solar cells*”, University of North Carolina at Chapel Hill, March 24, 2014
97. “*Universal formation of compositionally graded bulk heterojunction for efficiency enhancement in organic photovoltaics*” 247th ACS National Meeting and Exposition, March 16-20, 2014, Dallas, Texas
98. “*High Gain, Low Noise, Large Linear Dynamic Range UV Hybrid Photodetectors*” 50th Annual AOC International Symposium & Convention. 29 October 2013 Washington, DC
99. “*High gain, low noise and low cost nanocomposite photodetectors*”, SPIE Optics & Photonics, San Diego, California, United States, 25 - 29 August 2013
100. “*Organic bulk ferroelectric photovoltaic*” International Symposium on Integrated Functionalities ISIF 2013, July 30, Dallas, TX 2013
101. “*Organic Ferroelectronics*”, Invited seminar in Institute of Semiconductor, Chinese Academy of Sciences, Beijing, China June 25, 2013
102. “*Application of Ferroelectrics in Photovoltaic Application*”, Honorable speaker for the Polymer Science Lecture Series, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, June 24, 2013 Changchun, China
103. “*Organic Electronics*” Invited department seminar in South Central University, Changsha, China, May 28, 2013
104. “*Organic ferroelectric photovoltaics*” Invited seminar in Xiangtan, Xiangtan, China, May 30, 2013
105. “*Ferroelectric-organic hybrid photovoltaic*”, MRS 2012 Fall meeting, Boston, USA 2012
106. “*Switchable and high efficiency organic ferroelectric solar cell*” International Symposium on Integrated Functionalities ISIF 2012, June 18-21, Hong Kong, China, 2012
107. “*Ferroelectric Organic Photovoltaic-for Higher Efficiency and New Functionalities*”, UNL Department of Mechanical and Materials Engineering Seminar, Nov. 8, 2011, Lincoln, NE
108. “*Introduce an Electric Field into Polymer Solar Cell for Increased Efficiency*”, Fifth International Conference on Nanophotonics, May 22-25, Shanghai China 2011
109. “*Ferro-organic electronics*”, UCLA Department of Material Science and Engineering Seminar, Los Angeles, CA, March 20 2011
110. “*Dipole layer in organic electronic devices-a unique application opportunity for ferroelectric*”, International Symposium on Integrated Functionalities ISIF 2010, San Juan, Puerto Rico, Jun. 2010
111. “*Organic electronic materials and devices*” Seminar in J.A. Woollam Co, Lincoln NE Jun.5 2010
112. “*High efficiency polymer solar cell and polymer light emitting diodes*”, College of Material and Optoelectronic Physics, Xiangtan University, Hunan, China, June 2009
113. “*Interface engineering for high performance organic optoelectronic devices*”, Institute of Chemistry, Chinese Academy of Science, Beijing, China, November 2009
114. “*Achieving high efficiency and low cost polymer solar cells*”, Institute of Semiconductor, Chinese Academy of Science, Beijing, China, November 2009

GRADUATE ADVISEES

PhD Students

	Name	Co-supervisors	Supervise time	Dissertation title	Fund the student	Graduation date
29	Mengze Li	NA	2021	TBD	Yes, RA	TBD
28	Hangyu Gu	NA	8/2019-	TBD	Yes, RA	TBD
27	Mengru Wang	NA	8/2019-	TBD	Yes, RA	TBD
26	Nicholas Lauersdorf	NA	8/2019-	TBD	Yes, RA	TBD
25	Haoyang Jiao	NA	8/2018-	TBD	Yes, RA	TBD
24	Liang Zhao	NA	8/2018	TBD	Yes, RA	TBD
23	Charles Henry Van Brackle	NA	7/2017-present	Perovskite solar cell	Yes(RA)	8/16/2020
22	Derrek Spronk	NA	7/2017-present	Nanocomposite radiation detector	Yes(RA)	TBD
21	Peter Neil Rudd	NA	7/2017-present	Perovskite solar cell	Yes (RA)	TBD
20	Xuezeng Dai	NA	7/2017-present	Perovskite solar cell	Yes(RA)	TBD
19	Teddy Feng	NA	7/2017-present	Perovskite solar cell	Yes (RA)	5/8/2020
18	Xun Xiao	NA	7/2017-present	Perovskite solar cell	Yes(RA)	TBD
17	Ye Liu	Jeffrey Shield	1/2016-present	Perovskite solar cell	Yes(RA)	8/31/2020
16	Jingjing Zhao	Jeffrey Shield	1/2016-present	Perovskite	Yes(RA)	8/31/2019
15	Yun Lin	Jeffrey Shield	8/2015-present	Perovskite solar cell	Yes (RA, CSC)	8/31/2019
14	Yehao Deng	NA	8/2014-present	Perovskite solar cell	Yes(RA)	5/31/2019
13	Qi Wang	NA	8/2013-present	Polymer Solar Cell	Yes(RA)	5/31/2019
12	Yuchuan Shao	NA	8/2012-present	Ferroelectrics	Yes(RA)	5/31/2016
11	Jeremy VanDerslice	Zhaoyan Zhang	1/2012-present	Ellipsometry	No	5/31/2018
10	Bi Cheng	NA	8/2012-present	Nanoparticle Photodetector	Yes(RA)	5/31/2016
9	Dong Wang	NA	8/2015-8/2016	Perovskite solar cell	Yes(RA)	NA
8	Qingfeng Dong	Wenjing	9/2009-	Organic solar cells	Yes	8/2014

		Tian	8/2014			
7	Yu Bi	Tianfu	9/2009-8/2014	Organic solar cells	No	8/2014
6	Yunzhang Lu	Zhang	8/2012-7/2017	Organic solar cell	No	7/2017
5	Zhengguo Xiao	NA	8/2011-8/2015	Ferroelectric Organic Solar Cells	Yes(RA)	8/14/2015
4	Edwin Peng	Jeffrey Shield	5/2014-12/2014	Perovskite solar cell	Yes(RA)	NA
3	Fawen Guo	NA	1/2011-8/2014	Photodetector	Yes(RA)	5/31/2014
2	Bin Yang	NA	8/2010-12/2013	Bilayer Organic Solar cells	Yes(RA)	12/31/2013
1	Shumin Li	Li Tan	8/2013-12/2013	Nanoparticle synthesis	Yes (RA and CSC)	6/30/2018

Master Students

5	Charles Henry Van Brackle		2017-2020	PL study	Yes (RA)	8/16/2020
4	Yuanxiang Feng		2017-2020	Radiation Detectors	Yes (RA)	5/8/2020
3	Tomas Tong	Jeffrey Shield	2016-present	LED	Yes(RA)	8/31/2019
2	Miao Hu	NA	1/2014-2016	Perovskite solar cell	Yes(RA)	5/31/2016
1	Xiaopeng Zheng	Jeffrey Shield	8/2015-present	Perovskite solar cell	Yes(RA)	8/31/2019

Postdoc

	Name	Starting time	Research Projects
38	Wenzhan Xu	11/2021	
37	Hengkai Zhang	11/2021	
36	Prem Rana	8/2021	
35	Jiantao Wang	9/2021	
34	Zhifang Shi	5/2021	
33	Ye Liu	2/1/2021	
32	Matthew	1/4/2021	

	Davenport		
31	Md Aslam Uddin	1/4/2021	
30	Chengbin Fei	7/1/2020	
29	Ying Zhou	12/1/2019	New
28	Fei Ye	9/1/2019	New
27	Shen Wang	8/1/2019	New
26	Yehao Deng	7/15/2019	New
25	Guang Yang	8/1/2019	Perovskite solar cells
24	Zhenyi Ni	11/15/2018	Detectors
23	Shangshang Chen	10/1/2018	Perovskite solar cells
22	Qi Jiang	8/1/2018	Perovskite solar cells
21	Zhibin Yang	8/1/2017	Perovskite solar cells
20	Yu Zhou	9/1/2017	Perovskite solar cells
19	Wuqiang Wu	5/1/2017	Perovskite solar cells
18	Yuze Lin	7/1/2017	Perovskite solar cells
17	Yuchuan Shao	11/1/2017	Perovskite solar cells
16	Shuang Yang	7/1/2017	Perovskite solar cells
15	Yanjun Fang	9/2013-2/2018	Ferroelectrics
14	Haotong Wei	8/1/2014-present	Nanocomposite radiation detector
13	Bo Chen	11/1/2015-present	Perovskite solar cells
12	Zhenhua Yu	3/1/2017-present	Perovskite solar cells
11	Tianyou Zhang	10/1/2015-	Perovskite solar cells
10	Wei Wei	8/15/2015-	Perovskite single crystals
9	Yang Zhang	6/1/2015-	Photodetector
8	Yang Bai	2/1/2015-	Perovskite solar cells
7	Liang Shen	6/1/2014-	Photodetector
6	Qingfeng Dong	7/2013-	Ferroelectrics
5	Yongbo Yuan	12/2009-	Solar cell, transistor, detector
4	Chieu Nguyen	10/1/2014-2/15/2015	Photodetector
3	Qingfeng Zhang	2/1/2014 – 12/30/2014	Ferroelectrics
2	Roy Dong	2/2013-6/30/2014	Photodetector
1	Baodong Mao	5/2012-8/2013	Nanocrystal solar cells

Undergraduate Student Researcher

1. Toole, Jimmy Francis, 2021
2. Allen Wood, 2021

3. Billingsley, Alex Joe , 2018-2020
4. Jared Goldman, 2018
5. Philip Weibe, 2016-2017
6. Brian Cronin, 2015-2016
7. Alan Akil, Jan 2015-Dec. 2015
8. Runyu Zhang, Jan.2010-Dec 2012, UCARE student
9. Katie McDaniel, Lei Zhang, May 2015-Aug. 2015, MRSEC REU-Teacher Pair
10. Mitch Sanchez, May 2015-Aug. 2015, NSF REU
11. Michel Dawson, May 2015-Aug. 2015, NCMN High school researcher
12. William Ferreira, May 2014-May 2015
13. Mitchell Faltin, May 2013-May 2014, NSF REU student, UCARE student
14. Jennifer Mark, June 2013-Sep 2013, UCARE student
15. Stephanie Paustian, May 2012-Aug.2012, MRSEC REU student
16. William Smith, May 2012-Aug.2012, MRSEC RET teacher
17. Beatriz Dumont Defendi, May 2012-Aug.2012, MRSEC REU student
18. James L. Cox , Sep.2009-May,2011, UCARE student
19. Alexander Clement, May 2011-Aug 2011, MRSEC REU student

Honors/Awards Received by Advisees

1. Postdoc fellow Dr. Zhenyi Ni received the 2021 Postdoctoral Award for Research Excellence,
2. Graduate student Xun Xiao received Dean's Distinguished Dissertation Award, 'the highest level of graduate student scholarship at UNC-Chapel Hill', 2021
3. Graduate student Xun Xiao received Dissertation Finishing Scholarship. 2020
4. Graduate student Qi Wang received the BEST POSTER AWARD in International Symposium on Energy Science and Technology, 2018
5. Graduate student Yehao Deng received the 2018 Chinese Government Award for Outstanding Self-financed Student Abroad.
6. Graduate student Cheng Bi received the 2017 Chinese Government Award for Outstanding Self-financed Student Abroad.
7. Graduate student Qi Wang received the 2017 Chinese Government Award for Outstanding Self-financed Student Abroad.
8. Graduate student Qi Wang is awarded College of Engineering graduate research assistant award of the year 2016
9. Graduate student Qi Wang is awarded Mechanical and Materials Engineering department graduate research assistant award of the year 2016
10. Graduate student Yuchuan Shao is award **MRS graduate student award, gold medal, in the Spring MRS 2016 conference.** This is the 3rd time UNL material graduate students (All of them are from Huang group) broke into the prestigious award lists.
11. Graduate student Yuchuan Shao received the 2016 Chinese Government Award for Outstanding Self-financed Student Abroad In the category of SPECIAL Award.
12. Graduate student Cheng Bi received the competitive NCMN Graduate Research Fellowship for excellence in research in 2015 (total two awards per year in the campus).
13. Graduate student Zhengguo Xiao received received **2015 MRS Fall Meeting Graduate Student Silver Medal Award.** It is the second time a UNL graduate student received this award in the history.

14. Graduate student Zhengguo Xiao received the 2015 Chinese Government Award for Outstanding Self-financed Student Abroad.
15. Graduate student Yuchuan Shao received the 2015 "Outstanding Graduate Research Assistant Shao Award" This award recognizes excellence in graduate student research at UNL. Yuchuan is the only recipient for this award in 2015.
16. Postdoc Yongbo Yuan received the university 2014 Outstanding Postdoc Award
17. Graduate student Yuchuan Shao has been awarded the 2014 Nebraska Center for Materials & Nanoscience (NCMN) Fellowship.
18. Graduate student Bin Yang received the 2014 Chinese Government Award for Outstanding Self-financed Student Abroad.
19. Graduate student Bin Yang received 2013 MRS Fall Meeting Graduate Student Gold Medal Award. This is the highest award for graduate student in material research field. It is the first time a UNL graduate student received this award in the history.
20. Graduate student Zhengguo Xiao won the 2014 Department Graduate Student Research Award
21. Postdoc Qingfeng Dong won Spring 2013 Science Art Competition Award.
22. Undergraduate student researcher Runyu Zhang is awarded the Ralph & Martha Siemens Scholarship from the UNL

Committee Service

Olivia Williams, ELUCIDATION OF LIGHT-HARVESTING DYNAMICS IN LAYERED PEROVSKITES WITH TRANSIENT ABSORPTION SPECTROSCOPIES,
Derrek