

Jinsong Huang

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

Founder and CEO, Perotech Inc, 18-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

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

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

HONORS AND AWARDS

2022 Highly Cited Researchers™ list from Clarivate™

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

- 2022-present Member of Editorial Advisory Board (EAB) for ACS Energy Letters
- 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
- 2017-2022 Editorial Board Member for *Materials Today Physics*
- 2014-201 Editorial Board Member for *Scientific Reports*

Conference and Symposium Organizer

- 2023 Symposium EL20-Photo and Radiation Detection with Organic, Perovskite and Nano-crystalline Semiconductors, Ardan Armin, Pelayo Garcia de Arquer, Nicola Gasparini and Jinsong Huang, MRS spring 2023, San Francisco
- 2023 Symposium V for the 11th International Conference on Materials for Advanced Technologies (ICMAT 2023), Xiaogang Liu, Qiushui Chen, Osman Bakr, Jinsong Huang
- 2022 Gordon Research Conference, every two years, “Unconventional Semiconductors and Their Applications” Organizers: Matthew Beard, Jinsong Huang, Hanwei Gao and Iván Mora Seró
- 2022 EMRS 2021, Symposium on “Novel Materials for Radiation Detection” Jinsong Huang, Paul Sellin, Laura Basiricò
- 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 2021, 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 70,000+ as of 2023, H index: 122)

Highlight of the Science and Nature Publications:

1. Influence of voids on the thermal and light stability of perovskite solar cells, , M Wang, C Fei, MA Uddin, J Huang, **Science Advances** 8 (38), eabo5977, 2022
2. High grain boundary recombination velocity in polycrystalline metal halide perovskites, Z Ni, S Xu, H Jiao, H Gu, C Fei, J Huang, **Science Advances** 8 (36), eabq8345, 2022
3. Efficient Monolithic All-Perovskite Tandem Solar Modules with Small Cell-to-Module Derate, Xuezheng Dai, Shangshang Chen, Haoyang Jiao, Liang Zhao, Ke Wang, Zhenyi Ni, Zhenhua Yu, Bo Chen, Yongli Gao, Jinsong Huang*, **Nature Energy**, <https://doi.org/10.1038/s41560-022-01102-w>
4. Defect engineering in wide-bandgap perovskites for efficient perovskite–silicon tandem solar cells, Guang Yang, Zhenyi Ni, Zhengshan J. Yu, Bryon W. Larson, Zhenhua Yu, Bo Chen, Abdulwahab Alasfour, Xun Xiao, Joseph M. Luther, Zachary C. Holman,, Jinsong Huang*, **Nature Photonics**, published online

5. Transient quantum beatings of trions in hybrid organic tri-iodine perovskite single crystal, Uyen N. Huynh, Ye Liu, Ashish Chanana, Dipak R. Khanal, Peter C. Sercel, Jinsong Huang & Z. Valy Vardeny, **Nature Communications** volume 13, Article number: 1428 (2022)
6. Evolution of defects during the Degradation of Metal Halide Perovskite Solar Cells under Reverse-Bias and Illumination, Zhenyi Ni, Haoyang Jiao, Chengbin Fei, Hangyu Gu, Shuang Xu, Zhenhua Yu, Guang Yang, Yehao Deng, Qi Jiang, Ye Liu, Yanfa Yan and Jinsong Huang*, **Nature Energy**, volume 7, pages65–73 (2022)
7. Lead Adsorbing Ionogel-based Encapsulation for Impact-Resistant, Stable and Lead-Safe Perovskite Modules, Xun Xiao, Meixiang Wang, Shangshang Chen, Yihang Zhang, Hangyu Gu, Yehao Deng, Guang Yang, Chengbin Fei, Bo Chen, Yuze Lin, Michael D. Dickey, Jinsong Huang, **Science Advances** 2021; 7 : eabi8249
8. Recycling lead and transparent conductors from perovskite solar modules, Bo Chen, Chengbin Fei, Shangshang Chen, Hangyu Gu, Xun Xiao & Jinsong Huang, **Nature Communications** volume 12, Article number: 5859 (2021)
9. Lead Adsorbing Ionogel-based Encapsulation for Impact-Resistant, Stable and Lead-Safe Perovskite Modules, Xun Xiao, Meixiang Wang, Shangshang Chen, Yihang Zhang, Hangyu Gu, Yehao Deng, Guang Yang, Chengbin Fei, Bo Chen, Yuze Lin, Michael D. Dickey, Jinsong Huang, **Science Advances** 2021; 7 : eabi8249
10. Recycling lead and transparent conductors from perovskite solar modules, Bo Chen, Chengbin Fei, Shangshang Chen, Hangyu Gu, Xun Xiao & Jinsong Huang, **Nature Communications** volume 12, Article number: 5859 (2021)
11. 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
12. 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
13. 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)
14. 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)
15. 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)
16. 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).
17. 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)

18. 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)
19. 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)
20. 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)
21. 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)
22. 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)
23. 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)
24. Simplified Interconnection Structure based on C60/SnO_{2-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)
25. 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)
26. 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)
27. 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)
28. Efficient Sky-blue Perovskite Light-emitting Diodes via Photoluminescence 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
29. 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
30. 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.
31. 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.
 32. 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
 33. 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)
 34. 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.
 35. Halide Lead Perovskites for Ionization Radiation Detection, Haotong Wei, Jinsong Huang*, Invited Review, **Nature Communications**, In press
 36. Y. Fang, A. Armin, P. Meredith and J. Huang*, Accurate characterization of next generation thin film photodetectors, **Nature Photonics**, 13,1 (2019)
 37. 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.
 38. 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
 39. 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
 40. 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
 41. 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
 42. 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)

43. H. Wei, D. DeSantis, W. Wei, Y. Deng, D. Guo, T. J. Savenije, L. Cao and J. Huang*, Dopant Compensation in Alloyed $\text{CH}_3\text{NH}_3\text{PbBr}_{3-x}\text{Cl}_x$ Perovskite Single Crystals for Gamma-ray Spectroscopy, *Nature Materials*, volume 16, pages 826–833 (2017)
44. 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
45. 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).
46. 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 Heterogenous Substrate for Highly Sensitive X-ray Imaging, Nature Photonics, *Nature Photonics*, volume 11, pages 315–321 (2017)
47. E. Strelcov, Q. Dong, T. Li, J. Chae, Y. Shao, Y. Deng, A. Gruveman*, J. Huang *, and A. Centrone*, Ferroelasticity Revealed in $\text{CH}_3\text{NH}_3\text{PbI}_3$ Perovskites, Science Advances, *Science Advances*, 14 Apr 2017:Vol. 3, no. 4, e1602165
48. 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)
49. 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
50. 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)
51. 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)
52. 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
53. H. Wei, Y. Fang, P. Mulligan, W. Chuirazzi, 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)
54. 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)
55. 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)

56. 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)
57. 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)
58. 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)
59. 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)
60. 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)
61. 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)
62. 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)
63. 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. Perovskite Grain Wrapping by Converting Interfaces and Grain Boundaries into Robust and Water-Insoluble Low Dimensional Perovskites, Haoyang Jiao, Zhenyi Ni, Zhifang Shi, Chengbin Fei, Ye Liu, Xuezheng Dai, and Jinsong Huang*, *Sci. Adv.* Dec 2022, Vol 8, Issue 48, DOI: 10.1126/sciadv.abq4524
2. Bifacial all-perovskite tandem solar cells, Bo Chen, Zhenhua Yu, Arthur Onno, Zhengshan Yu, Shangshang Chen, Jiantao Wang, Zachary C. Holman, Jinsong Huang* , *Sci. Adv.* 8, eadd0377 (2022)
3. Solution Processed Ternary Tin (II) Alloy as Hole-transport Layer of Sn-Pb Perovskite Solar Cells for Enhanced Efficiency and Stability, Zhenhua Yu, Jiantao Wang, Bo Chen, Md Aslam Uddin, Zhenyi Ni, Guang Yang and Jinsong Huang*, doi.org/10.1002/adma.202205769, *Advanced Materials*, 2022
4. Influence of voids on the thermal and light stability of perovskite solar cells, , M Wang, C Fei, MA Uddin, J Huang, *Science Advances* 8 (38), eabo5977, 2022
5. High grain boundary recombination velocity in polycrystalline metal halide perovskites, Z Ni, S Xu, H Jiao, H Gu, C Fei, J Huang, *Science Advances* 8 (36), eabq8345, 2022
6. Carbazole-Based Hole Transport Polymer for Methylammonium-Free TinLead Perovskite Solar Cells with Enhanced Efficiency and Stability, Jiantao Wang, Zhenhua Yu, Daniel D.

- Astridge, Zhenyi Ni, Liang Zhao, Bo Chen, Mengru Wang, Ying Zhou, Guang Yang, Xuezheng Dai, Alan Sellinger, Jinsong Huang, *ACS Energy Letters* 7, 3353-3361, 2022
7. Efficient Monolithic All-Perovskite Tandem Solar Modules with Small Cell-to-Module Derate, Xuezheng Dai, Shangshang Chen, Haoyang Jiao, Liang Zhao, Ke Wang, Zhenyi Ni, Zhenhua Yu, Bo Chen, Yongli Gao, Jinsong Huang*, *Nature Energy*, <https://doi.org/10.1038/s41560-022-01102-w>
 8. Integrated Ideal - Bandgap Perovskite/Bulk - Heterojunction Solar Cells with Efficiencies > 24%, X Zhou, L Zhang, J Yu, D Wang, C Liu, S Chen, Y Li, Y Li, M Zhang, Y. Peng, Y. Tian, J. Huang, X. Wang, X. Guo, B. Xu, *Advanced Materials*, <https://doi.org/10.1002/adma.202205809>
 9. Excess PbI₂ Management via Multimode Supramolecular Complex Engineering Enables High-Performance Perovskite Solar Cells, H. Zhang, W. Yu, J. Guo, C. Xu, Z. Ren, K. Liu, G. Yang, M. Qin, J. Huang, Z. Chen, Q. Liang, D. Shen, Z. Wu, Y. Zhang, H. T. Chandran, J. Hao, Y. Zhu, C.S. Lee, X. Lu, Z. Zheng, J. Huang*, G. Li*, *Adv. Energy. Mater.*
 10. Defect engineering in wide-bandgap perovskites for efficient perovskite–silicon tandem solar cells, Guang Yang, Zhenyi Ni, Zhengshan J. Yu, Bryon W. Larson, Zhenhua Yu, Bo Chen, Abdulwahab Alasfour, Xun Xiao, Joseph M. Luther, Zachary C. Holman., Jinsong Huang*, *Nature Photonics*,
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Books and Book Chapters

1. Metal Halide Perovskites for Sensitive X-ray Detectors, Jingjing Zhao, Liang Zhao, and Jinsong Huang, Perovskite Photovoltaics and Optoelectronics From Fundamentals to Advanced Applications, Wiley-VCH
2. Perovskites Enabled Highly Sensitive and Fast Photodetectors, N. Lauersdor, J. Huang, Perovskite Photovoltaics and Optoelectronics From Fundamentals to Advanced Applications, Wiley-VCH
3. Jinsong Huang and Yongbo Yuan, Handbook of Organic Optoelectronic Devices – Vol 1, Perovskite Electronics,
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5. 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
6. Jiarong Lian, Yongbo Yuan, Edwin Peng and Jinsong Huang, “Interfacial Layers in Organic Solar Cells”, book chapter in “Organic and Hybrid Solar Cells”.

7. 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*”
8. 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)
9. 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)

INVITED LECTURES AND KEYNOTE SPEECHES

1. International Conference on the Physics of Semiconductors 2022. Perovskites/Organic Semiconductors, Sydney, June27-30, 2022
2. Understanding the Influence of Defects, Light and Ion Conduction in Metal Halide Perovskites for Stability, MRS Spring, Hawaii, May 12, 2022
3. Detecting Defects Evolution in Operational Perovskite Solar Cells, MRS Spring, Hawaii, May 10, 2022
4. Perovskite-based Multi-junction Solar Cells, nanoGe Spring Meeting 2022, 7th-9th March, 2022
5. American Physics Society (APS), session on Energy & Sustainability, Understanding physical properties of metal halide perovskites for photovoltaic application” Keynote talk. Oct. 23 - 24. 2021
6. Interplaying of Defects, Light, Ion Conduction in Metal Halide Perovskites for New Functionality and Stability, nanoGe Fall Meeting 2021, Perovskites III: Emerging Materials and Phenomena, 17-22 October 2021.
7. "Perovskite based photodetectors- sensitivity, color selectivity and stability" at symposium Next Generation Photodetectors". nanoGe Fall Meeting 17-22 October 2021
8. Lead management in perovskite solar cells, "Organic, Perovskite & Hybrid Solar Cells" at 2021 ACS fall meeting in Atlanta, GA, USA, August 22, 2021 to August 26, 2021.
9. Perovskites for direct and indirect ionization radiation detection, 8/1-8/5 SPIE 21 in San Diego
10. Addressing Lead Toxicity Issue of Perovskite Modules, 8/1-8/5 SPIE 21 in San Diego
11. Understanding Function of Extrinsic Metal Ions in Perovskites, April 24, 2021 MRS spring conference, online
12. Toward Large Area Perovskite/Silicon and Perovskite/Perovskite Tandem Cells/Modules, April. 13 2021, tandemPV 2021 Workshop
13. “Progress of p-i-n structure solar cells and minimodules development, nanoGe Spring Meeting 2021 on the Mar 9th – 12th.
14. 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

15. Defects in Metal Halide Perovskite Solar Cells, Seminar in Chemical Engineering Department of Wake Forest University, Feb. 3, 2021
16. Perovskite Solar Panels on Your Roof-Are They Ready?, Colloquium in the Department of Material Science and Engineering at Stanford University, January 29, 2021,
17. Defects in Perovskites, International Conference on Advances and Challenges in Perovskite and Organic Solar Cells, Jan 21, 2021
18. “Metal Halide Perovskite Semiconductors for Energy Harvesting-Current Progress and Challenges”, Triangle Hard Matter Workshop, December 7 and concluding on December 8, 2020. online
19. Defect Related Charge Traps and Doping in Perovskites, Solar Cells and Tandem Devices, MRS fall, Dec 3rd 2020, online
20. Addressing Upscaling Issues of Perovskite Technologies, “Innovative Materials for Energy” IME 2020 will take place on December 2nd , 2020 (CET 15.00), online
21. Progress in Understanding Perovskite Materials and Manufacturing of Efficient and Stable Solar Cells and Modules , University of Massachusetts Amherst, Feb. 27, 2020
22. Understand the Stability Limitation of Perovskites and Strategies to Enhance the Stability, MRS fall 2019, Boston, Dec. 6th, 2019
23. High throughput Fabrication of Efficient Perovskite Solar Modules and Tandem Solar Cells, MRS fall 2019, Boston, Dec. 4th, 2019
24. Scalable fabrication of perovskite modules, First Solar, Nov. 19, 2019
25. Photodetectors for radiation sensing, seminar, Georgia Institute of Technology, Nov.5, 2019
26. Multiple Facets Stability Issues of Metal Halide Perovskites and Mitigation Strategies ,PSCO 2019 Lausanne, Switzerland from 30 September to 2 October 2019
27. Growth of Perovskite Single Crystal and Defect Characterization, CHOISE meeting, Duke University, Sep 30, 2019
28. HALIDE PEROVSKITES FOR SENSITIVE, FAST WEAK LIGHT DETECTION, 2019 IEEE Research and Applications of Photonics in Defense Conference (RAPID), 8/19/19, Florida, USA
29. 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
30. 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
31. Defect Passivation in Halide Perovskites, International Conference on Hybrid and Organic Photovoltaics , Roma, Italy, from 2019 May 12th to 2019 May 15th
32. Perovskite materials for radiation detectors, OSU Material week, May 8th, 2019
33. Beyond Solar Cells—Perovskite Radiation Detectors and Light Emitting Diodes, April 22, 2019, MRS spring 2019
34. Unique properties of halide perovskites for applications beyond solar cells, Seminar in NCSU, Nov. 17, 2018

35. Advance in Understanding Defects and Passivation in Perovskite Materials and Devices, MRS fall 2018, November 26, 2018
36. “Halide perovskites: Understanding and Technology Development” Seminar in Duke University, Oct 31, 2018,
37. Perovskite materials and technology, fundamentals and upscaling, Seminar in Florida State University, Oct 17, 2018
38. “Halide perovskites: what do we know and where they will go?” Molecular Foundry Review Meeting, Invited nonuser presentation, Aug.15-16, 2018
39. “Layered perovskites for solar cells, is it really good?”, Institute of Chemistry, Chinese Academy of Science, July 10, 2018
40. “Perovskite solar cells, from lab cells to modules”, National Center for Nanoscience and Technology, China, July 7, 2018
41. “Halide Perovskites, Detectors and Solar Cells”, The 7th Sungkyun International Solar Forum 2018, June 27-29, SKKU, Seoul, Korea
42. “Perovskite materials and devices, 2nd WUT International Symposium on Advanced Optoelectronic Materials and Devices (June 23-25, 2018)
43. “Perovskite solar cells, from lab cells to modules”, Central South University, China, June 22, 2018
44. "Perovskite Solar Cells: From Fundamental Understanding to Commercialization", Gordon Research Conference, June 17-22, Hong Kong, CN, 2018
45. “Scalable fabrication of perovskite modules”, South China University of Technology, June 20th, 2018
46. “Scalable fabrication of perovskite modules”, Shanghai Jiaotong University, June 8th, 2018
47. Advance in Understanding Perovskite Materials for Solar Cell Applications, ACS-China, Hangzhou, China May 5-8,2018
48. Perovskite Materials and Solar Cells, Seminar in Suzhou University, Su Zhou, China, May 4, 2018
49. Halide Perovskites –Solar Energy, Detector Development and Fundamental Understanding, Seminar at University of Tennessee, Knoxville, TN , 4/24/2018
50. Matching the Perovskite Subcell with Silicon Cells for Efficient Tandem Solar Cells, MRS Spring 2018, Phoenix, AZ, April 2018
51. Stability enhancement of perovskite solar cells, MRS Spring 2018, Phoenix, AZ, April 2018
52. Halide Perovskites –Promising Materials for Radiation Detection beyond Solar, Seminar University of Michigan, Oct. 6, 2017
53. Understanding the properties of perovskite for high performance devices, Sep 18-20, PCSO 2017 Oxford, UK
54. 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
55. 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

56. 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
57. Understanding Fundamental Properties of Hybrid Perovskites, Telluride Workshop on Solar Solutions to Energy and Environmental Problems, 2017 Telluride, Colorado,
58. 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
59. Surfaces and Grain Boundaries in Perovskites-Ion Migration and Stability, MRS Fall 2016, 11/27-12/2, Boston, MA
60. 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.
61. 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),
62. “Perovskite based high performance photodetectors and radiation detectors,” SPIE Organic Photonics + Electronics , 28 August - 1 September 2016 , San Diego, California United States
63. 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
64. 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
65. 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,
66. 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
67. 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
68. 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
69. 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
70. May 23, 2016, Brown workshop Microstructural Evolution in Organic-Inorganic Hybrid Perovskite Thin Films
71. “Grain Morphology Engineering in Perovskite Solar Cells for High Efficiency and Long Stability” March 28-April 1, 2016, MRS, Phoenix,
72. Understanding of perovskite properties using single crystals, MARCH 17, 2016 BALTIMORE, APS meeting,

73. 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
74. "Understanding of perovskite materials", Feb. 26, 2016, Seminar at University of Houston
75. "Perovskite solar cells, status and the future," Feb. 15, 2016, Seminar at NCSU
76. "Perovskite electronics", Feb 11, 2016, Seminar at University of North Carolina Chapel Hill
77. "*Perovskite materials solar cells*," Seminar at Huazhong Science and Technology University, Wuhan, China, Dec. 23th, 2015.
78. "*What do we know about perovskite*," Department seminar at South Central University, Dec 22, 2015
79. "*What do we know about perovskite*," Department seminar at Beijing JiaoTong University, Dec. 18th, 2015
80. "*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
81. "*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
82. "*Tutorial NN: New Developments in Perovskite Solar Cells—From Fundamentals to Applications*" MRS2015 Fall meeting MRS invited Tutorial talk
83. "*Why Perovskites Work So Well for Photovoltaic Cells*" Department seminar at University of Florida, Oct. 26, 2015
84. "*Material Morphology and Defects in Hybrid Perovskite Solar Cells*" Department seminar at University of Wisconsin-Madison, Oct. 15, 2015
85. "*Morphology dependent carrier diffusion length in hybrid perovskite materials*", The 26th. International Conference on Amorphous and Nanocrystalline Semiconductors, Aachen, Germany Sep 13.-18th, 2015
86. "*Perovskite Solar Cell Progress at UNL*", Invited Talk at Brown University, Sep 11, 2015
87. "*High grain, low noise organic and nanoelectronic photodetectors*", SPIE Optics + Photonics 2015, San Diego, Aug. 13, 2015
88. *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
89. "*Hybrid Perovskites Material for Energy Harvesting and Sensing*" UNL Materials for Energy Systems Symposium, July 21, 2015
90. "*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.
91. "*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
92. "*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
93. “*Progress of perovskite materials and understanding*” Department seminar at Shenzhen University, June 8th, 2015
 94. “*Perovskite solar cell research status*” Department seminar at South Central University, June 1st, 2015
 95. “*Understand the fundamental electronic processes in hybrid perovskite solar cells*” Seminar at Huazhong Science and Technology University, Wuhan, China, June 1st, 2015.
 96. “*Diffusion Length in Organometal Trihalide Perovskites*”, Seminar in the Department of Physics, Peking University, China, May 27, 2015
 97. “*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
 98. “*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
 99. “*Perovskite Solar Cells Progress*”, Department Seminar in the Department of Material Science and Engineering, UCLA, Oct. 31st, 2014
 100. “*Charge Traps Enabled High Gain Photodetectors*”, Department Seminar in the Department of Mechanical Engineering, Ohio State University, Sep 3rd, 2014
 101. “*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
 102. “*Charge trap engineering for highly sensitive photodetectors*” Aug. 19, 2014 SPIE Optics and Photonics, San Diego, CA, USA
 103. “*Improving Perovskite Crystal Quality for High Device Performance*”, E-MRS, May 27, 2014, Lille, France
 104. “*Improving Perovskite Crystal Quality for High Device Performance and Its Operation Principle*”, Seminar in Central South University, Changsha, Hunan, China, May 13, 2014
 105. “*The development of organic ferroelectric photovoltaic*” Seminar in Institute of Semiconductor, Chinese Academy of Science, Beijing, China, May 5, 2014
 106. “*Ferroelectric polymer solar cells*”, University of North Carolina at Chapel Hill, March 24, 2014
 107. “*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
 108. “*High Gain, Low Noise, Large Linear Dynamic Range UV Hybrid Photodetectors*” 50th Annual AOC International Symposium & Convention. 29 October 2013 Washington, DC
 109. “*High gain, low noise and low cost nanocomposite photodetectors*”, SPIE Optics & Photonics, San Diego, California, United States, 25 - 29 August 2013
 110. “*Organic bulk ferroelectric photovoltaic*” International Symposium on Integrated Functionalities ISIF 2013, July 30, Dallas, TX 2013
 111. “*Organic Ferroelectronics*”, Invited seminar in Institute of Semiconductor, Chinese

Academy of Sciences, Beijing, China June 25, 2013

112. “*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
113. “*Organic Electronics*” Invited department seminar in South Central University, Changsha, China, May 28, 2013
114. “*Organic ferroelectric photovoltaics*” Invited seminar in Xiangtan, Xiangtan, China, May 30, 2013
115. “*Ferroelectric-organic hybrid photovoltaic*”, MRS 2012 Fall meeting, Boston, USA 2012
116. “*Switchable and high efficiency organic ferroelectric solar cell*” International Symposium on Integrated Functionalities ISIF 2012, June 18-21, Hong Kong, China, 2012
117. “*Ferroelectric Organic Photovoltaic-for Higher Efficiency and New Functionalities*”, UNL Department of Mechanical and Materials Engineering Seminar, Nov. 8, 2011, Lincoln, NE
118. “*Introduce an Electric Field into Polymer Solar Cell for Increased Efficiency*”, Fifth International Conference on Nanophotonics, May 22-25, Shanghai China 2011
119. “*Ferro-organic electronics*”, UCLA Department of Material Science and Engineering Seminar, Los Angeles, CA, March 20 2011
120. “*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
121. “*Organic electronic materials and devices*” Seminar in J.A. Woollam Co, Lincoln NE Jun.5 2010
122. “*High efficiency polymer solar cell and polymer light emitting diodes*”, College of Material and Optoelectronic Physics, Xiangtan University, Hunan, China, June 2009
123. “*Interface engineering for high performance organic optoelectronic devices*”, Institute of Chemistry, Chinese Academy of Science, Beijing, China, November 2009
124. “*Achieving high efficiency and low cost polymer solar cells*”, Institute of Semiconductor, Chinese Academy of Science, Beijing, China, November 2009

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 Qi Wang is awarded College of Engineering graduate research assistant award of the year 2016
6. Graduate student Qi Wang is awarded Mechanical and Materials Engineering department graduate research assistant award of the year 2016

7. 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.
8. 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).
9. 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.
10. 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.
11. Postdoc Yongbo Yuan received the university 2014 Outstanding Postdoc Award
12. Graduate student Yuchuan Shao has been awarded the 2014 Nebraska Center for Materials & Nanoscience (NCMN) Fellowship.
13. 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.
14. Graduate student Zhengguo Xiao won the 2014 Department Graduate Student Research Award
15. Postdoc Qingfeng Dong won Spring 2013 Science Art Competition Award.
16. Undergraduate student researcher Runyu Zhang is awarded the Ralph & Martha Siemens Scholarship from the UNL