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## 特聘副研究员

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#### 特聘副研究员

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研究方向: 1. 高效率无镉铜铟镓硒薄膜太阳能电池; 2. 超薄高效率铜铟镓硒薄膜电池; 3. 硒硫化锑薄膜太阳能电池; 4. 双结叠层薄膜太阳能电池;

#### 1. 简介:

李建民博士主要从事CIGS、CZTS和 $Sb_2(S,Se)_3$ 等薄膜太阳能电池的研究,特别是基于无镉化的薄膜太阳能电池研究,积累了丰富的研究经验,其中基于无镉的CIGS电池效率超过20%,CZTS效率超过7%。近年来,参与多项项目(ITF/249/17FP、T23-407/13-N、973计划2012CB922001等),并已在国际期刊和会议在线发表32篇论文,其中以第一作者和通讯作者在Nano Energy、JMCA、ACS Applied Materials & Interfaces、Nanoscale、Solar RRL以及Journal of Materials Science & Technology等杂志发表20余篇,申请4项中国专利,已授权2项。其中论文Solar Energy Materials & Solar Cells 144(2016)281-288获得了Elsevier颁发的高引用奖'Award for Most Cited Energy Article from China'。与此同时,还担任了包括Nano-Micro Letters、JMCA以及Solar Energy Materials and Solar Cells在内等多个国际期刊杂志的审稿工作。

#### 2. 研究教育背景:

2020.5 - 至今 副研究员 武汉大学

2019.4 - 2020.4 Postdoctoral Fellow 香港中文大学 导师: 肖旭东教授

2017.4 - 2019.4 Research Associate 香港中文大学 导师: 肖旭东教授

2012.9 - 2016.11 博士 中国科学技术大学 导师: 朱长飞教授

### 3. 期刊论文和专利:

#### (1) 论文 (Selected publications)

Google Scholar: <https://scholar.google.com/citations?user=VeqPMPIAAAAI&hl=zh-CN>

ORCID: <https://orcid.org/0000-0001-7491-0320>

1. Yifan Kong<sup>#</sup>, Lan Huang, Zheng Chi, Xiao Wu, **Jianmin Li**<sup>\*</sup>(通讯), and Xudong Xiao<sup>\*</sup>, Failure and recovery modes of submicron Cu(In,Ga)Se<sub>2</sub> solar cells with high Cu content, *ACS Applied Materials & Interfaces* 12(2020)52857-52863 (IF: 8.758, 一区)
2. **Jianmin Li**<sup>#</sup> (一作), Junbo Gong, Jiakuan Zhu, Zengyang Ma, Yuqi Zhao, Yifan Kong, Zheng Chi, Guilin Chen<sup>\*</sup>, Xudong Xiao<sup>\*</sup>, Double-sided Heat Exchange CBD System for Homogeneous Zn(O,S) Thin Films in Highly-efficient CIGS Solar Devices, *ACS Applied Energy Materials* 3(2020)11242-11248 (IF: 4.473, 二区) ( **Select as ACS Editors' Choice**, <https://t.lyb.co/7Uvn> )
3. Yifan Kong<sup>#</sup>, **Jianmin Li**<sup>#</sup> (共同一作), Zengyang Ma, Zheng Chi, Xudong Xiao<sup>\*</sup>, Ga double grading formation in submicron Cu(In,Ga)Se<sub>2</sub> solar cells by pre-depositing CuGaSe<sub>2</sub> layer, *Journal of Materials Chemistry A* 8 (2020) 9760-9767. (IF: 11.301, 一区)
4. **Jianmin Li**<sup>#,\*</sup>(一作/通讯), Jiabin Niu<sup>#</sup>, Xiao Wu, Yifan Kong, Jinlong Gao, Jiakuan Zhu, Qiang Li, Lan Huang, Shijin Wang, Zheng Chi, Xudong Xiao<sup>\*</sup>, Effects of laser scribed Mo groove shape on highly efficient Zn(O,S) based Cu(In,Ga)Se<sub>2</sub> solar modules, *Solar RRL*(2020)1900510. (IF: 7.527, 一区) (**Inside Front Cover**, <https://doi.org/10.1002/solr.202070042>)
5. Lan Huang<sup>#</sup>, **Jianmin Li**<sup>#</sup> (共同一作), Shijin Wang, Lan Zhong, Xudong Xiao<sup>\*</sup>, Forming an Ultrathin SnS Layer on Cu<sub>2</sub>ZnSnS<sub>4</sub> Surface to Achieve Highly Efficient Solar Cells with Zn(O,S) Buffer, *Solar RRL*(2020)2000010. (IF: 7.527, 一区)
6. Liqun Yao<sup>#</sup>, Limei Lin, Hui Liu, Fengying Wu, **Jianmin Li**<sup>\*</sup>(通讯), Shuiyuan Chen, Zhigao Huang, Guilin Chen<sup>\*</sup>, Front and Back Contact Engineering for High-efficient and Low-cost Hydrothermal Derived Sb<sub>2</sub>(S,Se)<sub>3</sub> Solar Cells by Using FTO/SnO<sub>2</sub> and Carbon, *Journal of Materials Science & Technology*, 58 (2020) 130–137. (IF:6.155, 一区)
7. **Jianmin Li**<sup>#,\*</sup>(一作/通讯), Lan Huang, Jie Hou, Xiao Wu, Jiabin Niu, Guilin Chen, Junbo Gong, Yifan Kong, Xudong Xiao<sup>\*</sup>, Effects of Substrate Orientation and Solution Movement in Chemical Bath Deposition on Zn(O,S) Buffer Layer and Cu(In,Ga)Se<sub>2</sub> Thin Film Solar Cells, *Nano Energy* 58 (2019) 427-436. (IF: 16.602, 一区)

8. Huiling Cai<sup>#</sup>, Liquan Yao, Yingsen Xia, Chunyan Dao, **Jianmin Li\***(通讯), Linmei Lin, Zhiping Huang, Guilin Chen\*, Superficial composition engineering for oxide nanoparticles derived  $\text{Cu}_2\text{ZnSn}(\text{S,Se})_4$  solar cells by a three-step annealing process, *Solar Energy* 193 (2019) 986-991. (IF: 4.608, 二区)
9. Huilin Cai<sup>#</sup>, Yingsen Xia, Chunyan Dao, **Jianmin Li\***(通讯), Limei Lin, Xiangkai Kong\*, Shuiyuan Chen, Zhigao Huang, Guilin Chen\*, A ambient-air sulfurization process for  $\text{Cu}_2\text{ZnSnS}_4$  thin film solar cells: self-creating inert atmosphere using sulfur vapor, *ACS Applied Energy Materials* 2(2019) 7279-7287. (IF: 4.473, 二区)
10. Binwen Chen<sup>#</sup>, Yurong Ruan, **Jianmin Li\***(通讯), Weihuang Wang, Xinlian Liu, Weiyi Shi, Huiling Cai, Liquan Yao, Jianmin Zhang, Shuiyuan Chen, Guilin Chen\*, Highly Oriented GeSe Thin Film: Self-Assembly Growth via the Sandwiching Post-Annealing Treatment and Its Solar Cell Performance, *Nanoscale* 11 (2019) 3968-3978. (IF: 6.895, 一区)
- 11. Jianmin Li<sup>#</sup>** (一作), Yaping Ma<sup>#</sup>, Guilin Chen, Junbo Gong, Xiaomin Wang, Yifan Kong, Xuhang Ma, Kedong Wang, Weimin Li, Chunlei Yang, Xudong Xiao\*, Effects of Ammonia-Induced Surface Modification of  $\text{Cu}(\text{In,Ga})\text{Se}_2$  on High Efficiency Zn(O,S)-Based  $\text{Cu}(\text{In,Ga})\text{Se}_2$  Solar Cells, *Solar RRL* 3(2019)1800254. (IF: 7.527, 一区)
12. Yan Zhang<sup>#</sup>, **Jianmin Li<sup>#</sup>** (共同一作), Guoshun Jiang, Weifeng Liu, Shangfeng Yang, Changfei Zhu, Tao Chen\*, Selenium-Graded  $\text{Sb}_2(\text{S}_{1-x}\text{Se}_x)_3$  for Planar Heterojunction Solar Cell Delivering a Certified Power Conversion Efficiency of 5.71%, *Solar RRL* 1(2017)1700017. (IF: 7.527, 一区) (Front Cover, <https://doi.org/10.1002/solr.201770114>)
- 13. Jianmin Li<sup>#</sup>** (一作), Yan Zhang, Yaguang Wang, Cong Xue, Jiasheng Liang, Guoshun Jiang, Weifeng Liu, Changfei Zhu\*, Formation of  $\text{Cu}_2\text{ZnSnS}_4$  thin film solar cell by CBD-annealing route: comparison of Cu and CuS in stacked layers SnS/Cu(S)/ZnS, *Solar Energy* 129 (2016) 1-9. (IF: 4.608, 二区)
- 14. Jianmin Li<sup>#</sup>** (一作), Cong Xue, Yaguang Wang, Guoshun Jiang, Weifeng Liu, Changfei Zhu\*,  $\text{Cu}_2\text{SnS}_3$  solar cells fabricated by chemical bath deposition-annealing of SnS/Cu stacked layers, *Solar Energy Materials & Solar Cells* 144(2016)281-288. (IF: 6.984, 二区) (Award for Most Cited Energy Article from China)
- 15. Jianmin Li<sup>#</sup>** (一作), Guilin Chen, CongXue, XinJin, Weifeng Liu, Changfei Zhu\*,  $\text{Cu}_2\text{ZnSnS}_{4-x}\text{Se}_x$  solar cells fabricated with precursor stacked layer ZnS/Cu/SnS by a CBD method, *Solar Energy Materials & Solar Cells* 137(2015)131-137. (IF: 6.984, 二区)

## (2) 专利申请:

1. 李建民, 宫俊波, 孔一帆, 肖旭东, Cu基薄膜太阳能电池光吸收层后处理及沉积缓冲层的方法, 公开号: CN110896109A

2. **李建民**, 吴肖, 宫俊波, 孔一帆, 钮佳斌, 肖旭东, 一种改善CIGS薄膜太阳能电池的缓冲层Zn(O,S)质量的方法, 公开号: CN111370528A

3. **李建民**, 刘伟丰, 江国顺, 朱长飞, 一种水浴叠层制备太阳能电池吸收层材料CZTS/CZTSSe的方法, 公开号:CN104269460A.

4. 朱长飞, 王亚光, **李建民**, 刘伟丰, 江国顺, 制备铜锡硫或铜锡硫硒薄膜的方法, 公开号:CN105047753A

#### 4. 学术荣誉

2017.12 获得Elsevier颁发的高引用奖, ‘Award for Most Cited Energy Article from China’.

感兴趣的本科生、研究生可与我联系。

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