

霍能杰 研究员



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霍能杰，博士，研究员，华南师范大学“青年拔尖人才”

2015年毕业于中国科学院半导体研究所，获得理学博士学位，师从“国家杰青”李京波教授；2015年至2019年，在ICFO-西班牙光子科学研究所做博士后，合作导师为“菲涅耳奖”获得者Prof. Gerasimos Konstantatos；2019年4月，入选华南师范大学“青年拔尖”人才计划，进入半导体科学技术研究院工作，从事低维半导体及其光电子器件的研究。近年来已在Nature Communications, Advanced Materials, Advanced Functional Materials, ACS Nano, Small, Advanced Optical Materials等国际重要学术期刊上发表SCI 学术论文30余篇，申请国家发明专利多项。多篇第一作者论文被选为VIP 论文、最热文章、Wiley Materials Views 亮点专题报道等，被国际同行广泛引用报道超过1360余次，最高单篇引用超过230次，ESI高被引论文2篇，H指数达到19。同时还是Nature Communications, ACS Photonics, Journal of Materials Chemistry C等多个国际学术期刊的通讯评审人。

研究领域：

- (1) 新型低维半导体（二维材料、溶胶量子点和钙钛矿等）的可控制备和物性调控；
- (2) 信息光电子器件基础和应用研究；
- (3) 低维纳米材料体系在能源、压电、铁磁、光电等领域的应用

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热烈欢迎物理、化学、信息光电和材料科学等相关专业背景的学生报考！欢迎具有相关研究经历的青年英才和博士后加盟，课题组研究方向前沿、氛围融洽、待遇优厚！

工作经历

2019/04 - 至今	研究员	华南师范大学
2015/10 - 2019/02	博士后	ICFO-The Institute of Photonic Sciences

- (1) **Nengjie Huo**, Gerasimos Konstantatos. Recent Progress and Future Prospects of 2D-based Photodetectors. **Advanced Materials** 2018, 30, 1801164.
- (2) **Nengjie Huo**, Gerasimos Konstantatos. Ultrasensitive all-2D MoS₂ phototransistors enabled by an out-of-plane MoS₂ PN homojunction. **Nature Communications** 2017, 8, 572.
- (3) **Nengjie Huo**, Shuchi Gupta, Gerasimos Konstantatos. MoS₂-HgTe Quantum Dot Hybrid Photodetectors beyond 2 μm. **Advanced Materials** 2017, 29, 1606576.
- (4) **Nengjie Huo**, Jun Kang, Zhongming Wei, Shu-Shen Li, Jingbo Li, Su-Huai Wei. Novel and Enhanced Optoelectronic Performances of Multilayer MoS₂-WS₂ Heterostructures Transistors. **Advanced Functional Materials** 2014, 24, 7025.
- (5) **Nengjie Huo**, Juehan Yang, Le Huang, Zhongming Wei, Shu-Shen Li, Su-Huai Wei, Jingbo Li. Tunable Polarity Behavior and Self-Driven Photoswitching in p-WSe₂/n-WS₂ Heterojunctions. **Small** 2015, 11, 5430.
- (6) **Nengjie Huo**, Yujue Yang, Yu-Ning Wu, Xiao-Guang Zhang, Sokrates T. Pantelides, Gerasimos Konstantatos. High carrier mobility in monolayer CVD-grown MoS₂ through phonon suppression. **Nanoscale** 2018, 10, 15071.
- (7) **Nengjie Huo**, Alberto Figueroba, Yujue Yang, Sotirios Christodoulou, Alexandros Stavrinadis, César Magén, Gerasimos Konstantatos. Engineering Vacancies in Bi₂S₃ yielding Sub-Bandgap Photoresponse and Highly Sensitive Short-Wave Infrared Photodetectors. **Advanced Optical Materials** 2019, 7, 1900258.
- (8) **Nengjie Huo**, Sefaattin Tongay, Wenli Guo, Renxiong Li, Chao Fan, Fangyuan Lu, Juehan Yang, Bo Li, Yongtao Li, Zhongming Wei. Novel Optical and Electrical Transport Properties in Atomically Thin WSe₂/MoS₂ p-n Heterostructures. **Advanced Electronic Materials** 2015, 1, 1400066.
- (9) **Nengjie Huo**, Zhongming Wei, Xiuqing Meng, Joongoo Kang, Fengmin Wu, Shu-Shen Li, Su-Huai Wei, Jingbo Li. Interlayer Coupling and Optoelectronic Properties of Ultrathin Two-Dimensional Heterostructures based on Graphene, MoS₂ and WS₂. **Journal of Materials Chemistry C** 2015, 3, 5467.
- (10) Yujue Yang, **Nengjie Huo** (共同第一作者), Jingbo Li. Gate-tunable and High Optoelectronic Performance in Multilayer WSe₂ PN Diode. **Journal of Materials Chemistry C** 2018, 6, 11673.
- (11) **Nengjie Huo**, Shengxue Yang, Zhongming Wei, Shu-Shen Li, Jian-Bai Xia, Jingbo Li. Photoresponsive and Gas Sensing Field-Effect Transistors based on Multilayer WS₂ Nanoflakes. **Scientific Reports** 2014, 4, 5209.
- (12) **Nengjie Huo**, Yan Li, Jun Kang, Renxiong Li, Qinglin Xia, Jingbo Li. Edge-states ferromagnetism of WS₂ nanosheets. **Applied Physics Letters** 2014, 104, 202406.
- (13) **Nengjie Huo**, Shengxue Yang, Zhongming Wei, Jingbo Li. Synthesis of WO₃ nanostructures and their ultraviolet photoresponse properties. **Journal of Materials Chemistry C** 2013, 1, 3999.
- (14) **Nengjie Huo**, Qu Yue, Juehan Yang, Shengxue Yang, Jingbo Li. Abnormal Photocurrent Response and Enhanced Photocatalytic Activity Induced by Charge Transfer between WS₂ Nanosheets and WO₃ Nanoparticles. **ChemPhysChem** 2013, 14, 4069.
- (15) **Nengjie Huo**, Yujue Yang, Jingbo Li. Optoelectronics based on 2D TMDs and heterostructures. **Journal of Semiconductors** 2017, 38, 031002.
- (16) Le Huang, **Nengjie Huo**, Yan Li, Hui Chen, Juehan Yang, Zhongming Wei, Jingbo Li, Shu-Shen Li. Electric-Field Tunable Band Offsets in Black Phosphorus and MoS₂ van der Waals p-n Heterostructure. **Journal of Physical Chemistry Letters** 2015, 6, 2483.

(1) 通讯波段红外探测器及其制备方法. 2019年, 发明专利, 专利号: 201910332683.3

(2) 一维硫碘化铋半导体纳米线光电探测器及其制备方法. 2019年, 发明专利, 专利号: 201910333413.4

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