

胡劲华导师信息

胡劲华，男，1984年10月出生，博士，教授，燕赵英才（A类）、中国光学学会高级会员、中国光学工程学会高级会员。2014年9月毕业于北京邮电大学信息光子学与光通信国家重点实验室，获得电子科学与技术专业，工学博士学位。在博士期间参与国家973项目研究工作，2014年12月至今工作于信电学院通信工程系。2017年9月获得教育部中西部高等学校青年骨干教师国内访问学者项目资助，在北京邮电大学信息光子学与光通信国家重点实验室访学一年，考核为优秀。在*Laser & Photonics Reviews*, *Applied Physics Letters*, *Optics Express*, *Optics Communications*, *Chinese Optics Letters* 等期刊上发表论文70余篇，授权国家发明专利5项。担任SCI检索期刊《*Materials*》专题客座编辑；*Optics Express*、*Optics Communications*、*Applied Physics Express*、*Photonics*、《红外与激光工程》、《光学学报》以及《激光与光电子进展》等国内外期刊审稿人；近年来，在国内外期刊上发表论文70余篇，授权国家发明专利5项。近五年来，独立指导信息与通信工程专业，合作指导光学工程专业硕士研究生12名，其中5名硕士生分别考取南京大学、兰州大学、四川大学、苏州大学和上海大学博士研究生。荣获河北工程大学优秀硕士学位论文指导教师、河北工程大学师德标兵等荣誉。在学术交流方面与上海交通大学、南京大学、浙江大学、北京邮电大学、重庆医科大学等国内知名院校科研团队建立良好的科研合作和学术交流关系。



一、研究方向

1. 光纤传感器与光纤传感网技术
2. 生物医学检测与人工智能技术
3. 微纳光子器件与智能传感技术

二、主要科研成果

1. 河北省高等学校科学技术研究项目，基于硅亚波长光栅的石墨烯光探测器研究，2016/01-2018/12，主持，结题
2. 河北省自然科学基金项目青年项目，基于亚波长光栅的石墨烯光探测器研究，2017/01-2019/12，主持，结题
3. 国家自然科学基金青年项目(C类)，基于微纳复合啁啾光栅结构的高性能光学生物传感器研究，2020/01-2022/12，主持，结题
4. 河北省高等学校科学技术研究项目重点项目，面向智慧医疗POCT的光栅型物传感器研究，2021/01-2023/12，主持，结题
5. 横向课题项目，高性能光学生物传感技术及其系统开发，2023/01-2023/12，主研，结题
6. 国家发明专利，一种基于深度学习的FBG光谱循环去噪方法(ZL202310690347.2)，2023.12 授权，第一发明人

三、主要研究论文

1. **J Hu***, J Sun, X Liu. Enhancing sensing performance through a metal-dielectric hybrid structure supporting hybridized TPP and symmetry-protected quasi-BIC. **Optics Express**, 2024, 32(27):48234-48242. (SCI 二区, TOP)
2. Y Sun, K Di, Y Deng, **J Hu***. Demodulation of Different Quantities of Overlapping Spectra in FBG Sensors Based on Combined Conv-TasNet and LSTM. **IEEE Sensors Journal**, 2024,24(18):28860-28868. (SCI二区, 通讯作者)
3. R Chu, **J Hu***, Sun Jiayi, Li Lei, Zhao Jijun. High-performance gas sensing in metagrating-based vertical cavity with larger fabrication tolerances driven by quasi-bound states in the continuum. **Optics Communications**, 2024, 570:130880. (SCI, 通讯作者)
4. L Sun, **J Hu***, L Li, X Liu, J Zhao. Tunable flat-top filter with cascaded compound gratings based on lithium niobate assisted by quasi-bound states in the continuum. **Optics Communications**, 2024,559:130408. (SCI, 通讯作者)
5. J Sun, **J Hu***,L Li, J Zhao. Robust high-Q quasi-BICs in double-layer high-contrast metagrating with temperature self-compensation for refractive index sensing. **Journal of Optics**, 2024, 26(9): 095801. (SCI, 通讯作者)
6. L Sun, **J Hu***, L Li, X Liu, J Zhao. Tunable flat-top filter with cascaded compound gratings based on lithium niobate assisted by quasi-bound states in the continuum. **Optics Communications**, 2024,559: 130408.(SCI, 通讯作者)
7. X Liu, S Zhang, **J Hu***, H Han, Near-perfect multi-band graphene absorber with a compound grating-based resonant structure. **Optics Communications**, 2024, 550: 129965.(SCI, 通讯作者)
8. **J Hu**, B Wang, K Di, J Zou, D Ren, J Zhao. High-performance gas sensor with symmetry-protected quasi-bound states in the continuum, **Optics Express**,2023, 31(25):41313-41325.(SCI 二区, TOP)
9. **J Hu**, H Guan, X Liu, Danping Ren, J Zhao. High-performance gas sensor with symmetry-protected quasi-bound states in the continuum, **Optics Express**,2023, 31(22):36228-36235 (SCI 二区, TOP)
10. **J Hu**, K Di, D Ren, Y Deng, and J Zhao. Recognition and localization of asymmetric spectra in FBG sensing networks, **Optics Express**, 2023,31(6):10645-10656. (SCI 二区, TOP)
11. X Liu, C Zhang, **J Hu***, H Han. Dual-band refractive index sensor with cascaded asymmetric resonant compound grating based on bound states in the continuum. **Optics Express**, 2023, 31:13959-13969.(SCI 二区, TOP, 通讯作者)
12. **J Hu**, J Liang, J Zou, C Shi, J Zhao. Dual-band perfect graphene absorber with an all-dielectric zero-contrast grating-based resonant cavity. **Optics Communications**, 2023, 527: 128908.(SCI)
13. J Liang, **J Hu***, X. Liu, J Zhao. Near-perfect narrow-band tunable graphene absorber with a dual-layer asymmetric meta-grating. **Photonics**. 2023, 10(1): 14. (SCI, 通讯作者)
14. C. Shi, **J. Hu***, X. Liu*, J. Liang, J. Zhao, H. Han, and Q. Zhu, Double-layer symmetric gratings with bound states in the continuum for dual-band high-Q optical sensing. **Beilstein Journal of Nanotechnology**, 2022, 13(1): 1408-1417(SCI, 通讯作者)

15. X Liu, C Shi, **J Hu***, H Wang, H Han, J Zhao. Improving the sensitivity of refractive index sensors with integrated double-layer resonant meta-grating structure. **Optics Communications**,2022,515:128171.(SCI, 通讯作者)
16. C Shi, X Liu, **J Hu**, H Han, J Zhao. High performance optical sensor based on double compound symmetric gratings. **Chinese Optics Letters**,2022,20(2):021201.(SCI)
17. J Zou, L Li, C Wang, Y Zhuang, X Wang, **J Hu**, S Luo, J J He. Novel high-resolution and large - bandwidth micro-spectrometer using multi-input counter propagating arrayed waveguide grating and dual - wavelength grating coupler on silicon on insulator. **Laser & Photonics Reviews**,2022, 2200355.(SCI 一区, IF 13.138)
18. **J Hu**, J Yu, X Liu, J Zou, L Zhang, J Zhao. Tunable flat-top filtering response in cascaded resonant waveguide gratings. **IEEE Photonics Journal**, 2021, 13 (2):1-8 (SCI)
19. **J Hu**, J Fu, X Liu, D Ren, J Zhao, Y Huang. Perfect absorption in a monolayer graphene at the near-infrared using a compound waveguide grating by robust critical coupling. **Chinese Optics Letters**, 2019, 17 (1): 010501 (SCI)
20. **J Hu**, X Liu, J Zhao, J Zou. Investigation of Fano resonance in compound resonant waveguide gratings for optical sensing. **Chinese Optics Letters**, 2017, 15 (3): 030502 (SCI)
21. **J Hu**, Y Huang, X Duan, Q Wang, X Zhang, J Wang, X Ren. Enhanced absorption of graphene strips with a multilayer subwavelength grating structure. **Applied Physics Letters**, 2014, 105 (22):22111.(SCI二区, TOP)
22. **J Hu**, Y Huang, X Ren, X Duan, Y Li, Y Luo. Realization of quantum efficiency enhanced PIN photodetector by assembling resonant waveguide grating. **Chinese Optics Letters**, 2014, 12(7):072301 (SCI)
23. **J Hu**, Y Huang, X Ren, X Duan, Y Li, Q Wang, X Zhang, J Wang. Modeling of Fano resonance in high-contrast resonant grating structures. **Chinese Physics Letters**, 2014, 31 (6): 064205 (SCI)

四、主要科研项目

1. 企业横向课题项目, 面向周界安全监控的 FBG 传感网光谱解调系统研制, 2023/11至2025/12, 主持, 30万元
2. 中央引导地方科技发展资金项目, 面向生物分子检测的高性能亚波长光栅垂直腔传感器研究, 2024/05至2027/04, 主研, 10万元

五、联系方式

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