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工作经历

博士后研究员		2023.10 - 至今
波士顿大学电子与计算机工程系 <i>Ji-xin Cheng</i> 教授课题组		波士顿
特聘副研究员		2021.7 - 2023.10
北京大学物理学院施可彬教授课题组		北京
博士后		2019.7 - 2021.6
北京大学物理学院施可彬教授课题组		北京

教育背景

北京大学	博士-光学 导师: 施可彬教授	2014 - 2019
南开大学	本科-物理学	2010 - 2014

专业技能

[光学] 研究方向: 计算成像、非线性光学、全息/数字全息、显微成像、光谱学

技术专长: 复杂光学成像系统的方案设计、光路搭建与调试、系统稳定性与性能优化

应用领域: 活细胞成像、无标记/荧光成像、多模态与超分辨显微成像

[编程] MATLAB, C/C++, Labview, Python, Bash, L^AT_EX

- 仪器控制与自动化: 精通图像/信号采集与控制程序开发, 熟练掌握嵌入式系统软硬件协同设计

- 图像/信号处理: 熟练掌握常用机器视觉和图像/信号处理算法, 具有丰富的相关算法开发与优化经验

- 高性能计算: 掌握基于 GPU 与 Linux 集群的并行计算编程及实时图像处理程序开发

[软件] Fiji/ImageJ, Mathematica, OriginPro, Adobe AI/PS, Zemax, COMSOL

代表性论文

- (1) *Lige Liu[#], Dashan Dong[#], Zhiwei Long, Wanxue Wei, Chang Sun, Wei Liu, Xiaoshuai Huang, Liangyi Chen, Haizheng Zhong[✉], and Kebin Shi[✉]. “ Single particle fluorescence imaging of perovskite nanocrystal crystallization for illustrating coupled nucleation-and-growth ↗ . ” *Nature Communications*, 16.5664, (2025).*
- (2) *Dashan Dong[#], Xiaoshuai Huang[#], Liuju Li[#], Heng Mao, Yanquan Mo, Guangyi Zhang, Zhe Zhang, Jaiyu Shen, Wei Liu, Zeming Wu, Guanghui Liu, Yanmei Liu, Hong Yang, Qihuang Gong, Kebin Shi[✉], and Liangyi Chen[✉]. “ Super-resolution fluorescence-assisted diffraction computational tomography reveals the three-dimensional landscape of the cellular organelle interactome ↗ . ” *Light: Science & Applications*, 9.11, (2020).*
- (3) *Shuqi Mu[#], Yingtong Shi, Yintong Song, Wei Liu, Wanxue Wei, Qihuang Gong, Dashan Dong[✉], and Kebin Shi. “ Multislice computational model for birefringent scattering ↗ . ” *Optica*, 10.1, (2023).*
- (4) *Shuqi Mu[#], Yu Yang, Juhao Li, Dashan Dong[✉], Ruijun Lan[✉], Kebin Shi. “ Three dimension refractive index characterization for photonic waveguides ↗ . ” *Journal of Lightwave Technology*, 40.8, (2022).*
- (5) 魏婉雪[#], 何苗, 徐坚, 董大山[✉]. “ 一种大视野快速光学衍射层析成像技术 ↗ . ” *中国激光*, 50.3, (2023).
- (6) *Dashan Dong[#], Kebin Shi[✉]. “ Solving the missing cone problem by deep learning ↗ . ” *Advanced Photonics*, 2.2, (2020).*

其它学术论文

- (1) George Abu-Aqil[#], **Dashan Dong**[#], Jiaze Yin[#], Jianpeng Ao, Hongjian He, Guangrui Ding, Qing Xia, Ji-Xin Cheng[✉]. “Bond-Selective Imaging via Vibrational Relaxation Encoded Fluorescence [\[2\]](#).” *The Journal of Physical Chemistry Letters*, 16, (2025).
- (2) Jia Danchen[#], Huang Steven[#], Tulegenov Dias, **Dashan Dong**, Shvets Gennady[✉], Cheng Ji-Xin[✉]. “Metasurface-enhanced infrared photothermal microscopy towards ultrasensitive chemical analysis [\[2\]](#).” *Advanced Photonics*, 7.5, (2025).
- (3) Qian Chen[#], Wen Gou[#], Wenqing Lu[#], Jie Li, Yuhong Wei, Haoyu Li, Chengyu Wang, Wei You, Zhengqian Li, **Dashan Dong**, Xiuli Bi, Bin Xiao[✉], Liangyi Chen[✉], Kebin Shi[✉], Junchao Fan[✉], Xiaoshuai Huang[✉]. “Fast, three-dimensional, live-cell super-resolution imaging with multiplane structured illumination microscopy [\[2\]](#).” *Nature Photonics*, (2025).
- (4) Jiaze Yin[#], Christian Pfluegl, Chu C. Teng, Rylie Bolarinho, Guo Chen, Xinrui Gong, **Dashan Dong**, Daryoosh Vakhshoori, Ji-Xin Cheng[✉]. “Mid-infrared Energy Deposition Spectroscopy [\[2\]](#).” *Physical Review Letters*, 134.9, (2025).
- (5) Yue Wang[#], Jingrui Gong, Ning Xu, Shaohui Yan, **Dashan Dong**, Kebin Shi[✉]. “Large Field of View and Isotropic Light Sheet Microscopy with Aberration-Free Tunable Foci [\[2\]](#).” *Laser & Photonics Reviews*, 19.3, (2025).
- (6) Wenkai Yang[#], Zijian Wang, Jian Xu, **Dashan Dong**, Guiyuan Cao, Han Lin, Baohua Jia, Lige Liu[✉], Kebin Shi[✉]. “Ultracompact computational spectroscopy with a detour-phased planar lens [\[2\]](#).” *Light: Advanced Manufacturing*, 5.44, (2024).
- (7) Ziheng Ji[#], Wentao Yu, **Dashan Dong**, Hong Yang, Kaihui Liu, Yun-Feng Xiao, Qihuang Gong, Qinghai Song[✉], Kebin Shi[✉]. “High spatial resolution collinear chiral sum-frequency generation microscopy [\[2\]](#).” *Advanced Photonics Nexus*, 3.2, (2024).
- (8) Yue Wang[#], **Dashan Dong**, Wenkai Yang, Renxi He, Ming Lei, and Kebin Shi[✉]. “Reflective ultrathin light-sheet microscopy with isotropic 3D resolutions [\[2\]](#).” *Photonics Research*, 12.2, (2024).
- (9) Peng Liu[#], Jing Shi[#], Danli Sheng[#], Wenqing Lu, Jie Guo, Lei Gao, Xiaoqing Wang, Shaofeng Wu, Yanwen Feng, **Dashan Dong**, Xiaoshuai Huang[✉], and Hongyun Tang[✉]. “Mitopherogenesis, a form of mitochondria-specific ectocytosis, regulates sperm mitochondrial quantity and fertility [\[2\]](#).” *Nature Cell Biology*, 25, (2023).
- (10) Wenkai Yang[#], Lige Liu[✉], **Dashan Dong**, Yunan Gao, Hong Yang, Qihuang Gong, and Kebin Shi[✉]. “In situ three-dimensional observation of perovskite crystallization revealed by two-photon fluorescence imaging [\[2\]](#).” *Advanced Optical Materials*, 10.13, (2022).
- (11) Wenkai Yang[#], Lige Liu[#], **Dashan Dong**, Xin Zhang, Han Lin, Yunkun Wang, Hong Yang, Yunan Gao, Haizheng Zhong, Baohua Jia, and Kebin Shi[✉]. “Detour-phased perovskite ultrathin planar lens using direct femtosecond laser writing [\[2\]](#).” *Photonics Research*, 10.12, (2022).
- (12) Runfeng Li[#], Ruijun Lan[✉], **Dashan Dong**, Hong Yang, and Kebin Shi[✉]. “Bessel beam coherent anti-Stokes Raman scattering spectroscopy for turbulent flow diagnosis [\[2\]](#).” *Applied Spectroscopy*, (2022).
- (13) 穆书奇[#], 董大山, 施可彬[✉]. “无标记光学成像技术 [\[2\]](#).” *激光与光电子学进展*, 59.12, (2022).
- (14) 李润丰[#], 董大山, 施可彬[✉]. “光场调控在相干拉曼散射光谱与成像中的应用(特邀) [\[2\]](#).” *光子学报*, 50.1, (2022).
- (15) Wei Liu[#], **Dashan Dong**, Hong Yang, Qihuang Gong, and Kebin Shi[✉]. “Robust and high-speed rotation control in optical tweezers by using polarization synthesis based on heterodyne interference [\[2\]](#).” *Opto-Electronic Advances*, 3.8, (2020).
- (16) Shuanglong Liu[#], Bowen Sheng, Xinqiang Wang[✉], **Dashan Dong**, Ping Wang, Zhaoying Chen, Tao Wang, Xin Rong, Duo Li, Liuyun Yang, Shangfeng Liu, Mo Li, Jian Zhang, Weikun Ge, Kebin Shi, Yuzhen Tong, Bo Shen. “Molecular beam epitaxy of single-crystalline aluminum film for low threshold ultraviolet plasmonic nanolasers [\[2\]](#).” *Applied Physics Letters*, 122.23, (2018).
- (17) Wentao Yu[#], Ziheng Ji, **Dashan Dong**, Xusan Yang, Yunfeng Xiao, Qihuang Gong, Peng X[✉], and Kebin Shi[✉]. “Superresolution deep imaging with hollow Bessel beam STED microscopy [\[2\]](#).” *Laser & Photonics Reviews*, 10.1, (2016).
- (18) Yonggang Lv[#], Ziheng Ji, **Dashan Dong**, Kebin Shi[✉], and Qihuang Gong. “Wide-field vibrational phase contrast imaging

based on coherent anti-Stokes Raman scattering holography.” *Chinese Physics Letters*, 32.7, (2015).

- (19) *Bin Tsai[#], Wei Liu, Dashan Dong, Kebin Shi, Liangyi Chen, Ning Gao[✉]*. “Phase separation of Mer2 organizes the meiotic loop-axis structure of chromatin during meiosis I.” *bioRXiv*, (2020).

会议论文

- (1) **Dashan Dong** and *Ji-Xin Cheng*. “Super-resolution Chemical Imaging via Structured Illumination Fluorescence-Detected Mid-Infrared Photothermal Microscopy.” *Novel Techniques in Microscopy*, Optica Biophotonics Congress NTu3C.3 (2025).
- (2) *Wanxue Wei, Dashan Dong, Kebin Shi*. “Fast optical diffraction tomography microscopy with large field of view and lossless pupil beam combination.” *Ultrafast Nonlinear Imaging and Spectroscopy XII*, Proc. SPIE 1313910, (2024).
- (3) **Dashan Dong**, *Xiaoshuai Huang, Liuju Li, Kebin Shi, and Liangyi Chen*. “Super-Resolution Fluorescence Assisted Diffraction Computational Tomography Reveals the Three-Dimensional Landscape of Cellular Organelle Interactome.” *Advanced Optical Imaging Technologies III*, SPIE/COS Photonics Asia 115490G, (2020).
- (4) **Dashan Dong**, *Xiaoshuai Huang, Liuju Li, Kebin Shi, and Liangyi Chen*. “Super-Resolution Fluorescence Assisted Diffraction Computational Tomography Reveals the Three-Dimensional Landscape of Cellular Organelle Interactome.” *Digital Holography and Three-Dimensional Imaging 2020*, Imaging and Applied Optics Congress, Optica Publishing Group HF1G.6, (2020).
- (5) **Dashan Dong**, *Yanhui Cai, Ziheng Ji, Hong Yang, Qihuang Gong, and Kebin Shi*. “Tomographic Diffractive Microscopy for Better 3D Imaging.” *14th International Conference on Photonics and Imaging in Biology and Medicine*, Optica Publishing Group W3A.43, (2017).
- (6) *Kebin Shi, Dashan Dong, Yanhui Cai, Wei Liu, Chendi Shao*. “High resolution nonlinear imaging based on optical field engineering.” *Ultrafast Nonlinear Imaging and Spectroscopy V*, Proc. SPIE 103800Z, (2017).

专利

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|-------------------------------------|--------------------------------|
| (1) 一种双模态显微成像系统和方法 | 国际专利 PCT/CN2021/071393, (2020) |
| (2) 一种基于缺失型反射镜的离轴全息合束装置及其方法 | 2023110715739, (2023) |
| (3) 一种双模态显微成像系统及其成像方法 | ZL202110946936.3, (2022) |
| (4) 基于微棱镜的反射式轴向光片荧光显微成像装置及方法 | ZL 202110817118.3, (2022) |
| (5) 一种基于贝塞尔 CARS 的湍流光谱测量系统及其测量方法 | ZL202110667298.1, (2022) |
| (6) 一种双模态显微成像系统和方法 | ZL202010059510.1, (2022) |
| (7) 基于光学外差干涉法的动态柱矢量光场产生装置及其方法 | ZL202010493775.2, (2021) |
| (8) 一种基于 GB-STED 的深层超分辨激光直写系统及其实现方法 | ZL202010069141.4, (2020) |

科研项目

[课题负责人] 国家重点研发计划下设青年科学家课题 (2022YFC3401103)	2022
活细胞超分辨率三维全景成像与解析技术体系研发课题：无标记成像与大数据机器学习	234 万元
[主持] 国家自然科学基金青年科学基金项目 (12004013)	2021
用于活细胞成像的反射式光学衍射层析成像及其应用	24 万元
[共同负责人] 北京大学临床医学 +X 青年专项	2022
基于无标记成像探究脂滴在卵不对称分裂中的作用	10 万元
[主持] 中国博士后科学基金第 68 批面上资助 (2020M680220)	2021
超分辨荧光辅助的光学衍射层析成像及其应用	8 万元
[参与] 国家自然科学基金面上项目 (12174010)	2022

会议报告

[口头报告] Optica Biophotonics Congress 2025	2025.4
<i>Super-Resolution Chemical Imaging via Structured Illumination Fluorescence-Detected Mid-Infrared Photothermal Microscopy</i>	美国-圣地亚哥
[墙报] Chemical Imaging 2023, Gordon Research Conference	2023.8
<i>Optical Diffraction Tomography Reveals the 3D Landscape of Living Cells</i>	美国-波士顿
[邀请报告] 第一届先进成像与信息处理会议暨 2023 中国光学学会全息与光信息处理专委会学术年会	2023.7
面向低光毒性的生物光学成像新技术	江西-井冈山
[邀请报告] 第三届全国光子技术论坛	2023.4
基于光场调控的高分辨成像及应用	广东-广州
[邀请报告] 第二届国际计算成像会议 (CITA2022)	2022.10
基于光学衍射层析的活细胞全景成像	上海(线上)
[邀请报告] 第五届光学青年科学家论坛 (OYSS2022)	2022.9
基于光场调控的高分辨成像及应用	福建-福州
[邀请报告] 第二十届全国基础光学与光物理学术讨论会	2021.9
基于四维时空连续性的光学衍射层析成像	吉林-延吉
[邀请报告] 2021 年中国光学学会学术大会	2021.9
基于四维时空连续性的光学衍射层析成像	广东-深圳
[邀请报告] 第四届光学青年科学家论坛 (OYSS2020)	2020.12
光学衍射层析显微成像及其应用	浙江-宁波
[口头报告] 第二届全国光子技术论坛	2020.11
光学衍射层析显微成像及其应用	广东-广州
[邀请报告] 2020 年全国电子显微学学术年会	2020.11
基于光学衍射层析的活细胞全景成像	四川-成都
[口头报告] 第十二届全国光学青年学术论坛	2020.11
光学衍射层析显微成像及其应用	河北-保定
[口头报告] 2020 年亚洲光电子会议 (Photonics Asia 2020)	2020.10
<i>Super-Resolution Fluorescence Assisted Diffraction Computational Tomography Reveals the Three-Dimensional Landscape of Cellular Organelle Interactome</i>	线上
[口头报告] Digital Holography and Three-Dimensional Imaging, Imaging and Applied Optics Congress	2020.6
<i>Super-Resolution Fluorescence Assisted Diffraction Computational Tomography Reveals the Three-Dimensional Landscape of Cellular Organelle Interactome</i>	线上
[墙报] International Conference on Photonics and Imaging in Biology and Medicine	2017.9
<i>Tomographic Diffractive Microscopy for Better 3D Imaging</i>	江苏-苏州
[墙报] SPIE Optics + Photonics 2017	2017.8
<i>Tomographic Diffractive Microscopy for Better 3D Imaging</i>	美国-圣迭戈
[口头报告] 中国物理学会 2016 年秋季学术会议	2016.8
光学衍射断层显微成像	北京

学术服务

[审稿人]	Photonics Research, Optics Letters, Optics Express, Advanced Science, APL Photonics, 中国激光, 光学学报	
[程序委员]	国际计算成像会议 (CSOE-CITA), 专题 9: 生物医学与计算成像	2022, 2023
[青年编委]	《中国激光》杂志	2022, 2023
[志愿者]	SPIE/COS 亚洲光电子会议	2016, 2022
[主席]	北京大学 SPIE 学生分会	2017
[副主席]	北京大学 SPIE 学生分会	2016

学位论文

[博士学位论文]	光学衍射层析显微成像的研究	导师: 施可彬教授, 北京大学
[本科毕业论文]	新型矢量光场的特性研究	指导教师: 李勇男教授, 南开大学

荣誉奖项

[2022]	人工微结构和介观物理国家重点实验室甘子钊优秀博士后奖	北京大学
[2022]	现代光学所重要科研进展	北京大学
[2017]	五四奖学金	北京大学
[2017]	优秀科研单项奖	北京大学
[2013]	合展励学金	中国科技馆发展基金会
[2012]	国家励志奖学金	南开大学
[2012]	第三届中国大学生物理学术竞赛-团队一等奖	
[2012]	三好学生	南开大学
[2011]	优秀学生基础学科奖学金	南开大学