

Academic Experience

Postdoctoral Associate	Oct 2023 - now
<i>Prof. Ji-xin Cheng's Lab, ECE, Boston University</i>	Boston, MA, USA
Associate Research Fellow	Jul 2021 - Oct 2023
<i>Prof. Kebin Shi's Lab, School of Physics, Peking University</i>	Beijing, China
Postdoctoral Fellow	Jul 2019 - Jun 2021
<i>Prof. Kebin Shi's Lab, School of Physics, Peking University</i>	Beijing, China

Education

Peking University	<i>Ph.D. in Optics</i> Advisor: Prof. Kebin Shi	2014 - 2019
Nankai University	<i>BS in Physics</i>	2010 - 2014

Skills

[Optics] Expert in Computational Imaging, Nonlinear Optics, Holography/Digital Holography, Microscopy, Spectroscopy
 Skilled in Designing, Building, Aligning, and Optimizing Complex Optical Imaging Systems
 Proficient in Live-Cell Imaging, Label-free and Fluorescence Imaging, Multimodal and Super-resolution Microscopy

[Programming] MATLAB, C/C++, Labview, Python, Bash, \LaTeX
 - Proficient in **Instrument Control**, with expertise in Imaging/Signal Acquisition and Embedded System
 - Skilled in **Image/Signal Processing**, with experience in Computer Vision, Data Visualization
 - Experienced in **High Performance Computing** with Parallel Programming on GPU and Linux-Clusters

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

Highlighted Publications

- (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).
 Wanxue Wei[#], Miao He, Jian Xu, Dashan Dong[✉]. “Large field-of-view fast optical diffractive tomographic microscopy”

” *Chinese Journal of Lasers*, 50.3, (2023).

(6) **Dashan Dong**[#], **Kebin Shi**[✉]. “ [Solving the missing cone problem by deep learning](#) ”. *Advanced Photonics*, 2.2, (2020).

Other Publications

- (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](#) ”. *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](#) ”. *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](#) ”. *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](#) ”. *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](#) ”. *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](#) ”. *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](#) ”. *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](#) ”. *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**[✉]. “ [Mitophogenesis, a form of mitochondria-specific ectocytosis, regulates sperm mitochondrial quantity and fertility](#) ”. *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](#) ”. *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](#) ”. *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](#) ”. *Applied Spectroscopy*, (2022).
- (13) **穆书奇**[#], **董大山**, **施可彬**[✉]. “ [无标记光学成像技术](#) ”. *激光与光电子学进展*, 59.12, (2022).
Shuqi Mu[#], **Dashan Dong**, **Kebin Shi**[✉]. “ [Label-free optical imaging technology](#) ”. *Laser & Optoelectronics Progress*, 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 \(特邀\)](#) ”. *光子学报*, 50.1, (2022).
Runfeng Li[#], **Dashan Dong**, **Kebin Shi**[✉]. “ [Coherent Raman scattering spectroscopy and microscopy based on optical field engineering \(Invited\)](#) ”. *Acta Photonica Sinica*, 51.1, (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](#) ”. *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](#) ”. *Applied Physics Letters*, 122.23, (2018).
- (17) Wentao Yu[#], Ziheng Ji, **Dashan Dong**, Xusan Yang, Yunfeng Xiao, Qihuang Gong, Peng Xi[✉], and Kebin Shi[✉]. “ [Superresolution deep imaging with hollow Bessel beam STED microscopy](#) ”. *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).

Conference Abstracts

- (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 1038000Z, (2017).

Patents

- (1) [Dual-modality microscopic imaging system and method](#) International Patent PCT/CN2021/071393, (2020)
- (2) [Off-axis holographic beam combining device and method based on missing reflector](#) CN Patent 2023110715739, (2023)
- (3) [Dual-modality microscopic imaging system and imaging method](#) CN Patent ZL202110946936.3, (2022)
- (4) [Reflective axial light sheet fluorescence microscopy imaging device and method based on microprism](#) CN Patent ZL 202110817118.3, (2022)
- (5) [Bessel CARS-based turbulence spectral measurement system and its detection method](#) CN Patent ZL202110667298.1, (2022)
- (6) [Dual-modality microscopic imaging system and method](#) CN Patent ZL202010059510.1, (2022)
- (7) [Device and method for generating dynamic cylindrical vector light field based on optical heterodyne interferometry](#) CN Patent ZL202010493775.2, (2021)
- (8) [GB-STED based deep-layer super-resolution laser direct writing system and implementation method thereof](#) CN Patent ZL202010069141.4, (2020)

Received Grants

[Co-PI] Young Scientists Sub-Project (Label-free imaging and big-data machine learning)	2022
Super-resolution 3D landscape imaging and resolving technology of living cell	CNY 2,340,000
<i>National Key Research and Development Program of China</i>	
[Co-PI] Clinical Medicine Plus X - Young Scholars Project	2022
Exploring the role of lipid droplets in egg asymmetric division based on label-free imaging	CNY 100,000
<i>Peking University, the Fundamental Research Funds for the Central Universities</i>	
[PI] Young Scientist Fund (12004013)	2021
Reflective optical diffraction tomography for live cell imaging and its application	CNY 240,000
<i>National Natural Science Foundation of China</i>	
[PI] No.68 General Fund (2020M680220)	2021
Super-resolution fluorescence-assisted optical diffraction tomography and its application	CNY 80,000
<i>China Postdoctoral Science Foundation</i>	

Conference Presentations

[Oral] Optica Biophotonics Congress 2025	Apr 2025
<i>Super-Resolution Chemical Imaging via Structured Illumination Fluorescence-Detected Mid-Infrared Photothermal Microscopy</i>	San Diego
[Poster] Chemical Imaging 2023, Gordon Research Conference	Aug 2023
<i>Optical Diffraction Tomography Reveals the 3D Landscape of Living Cells</i>	Boston, USA
[Invited] Advanced Imaging and Information Processing Conference (AIIP 2023)	Jul 2023
<i>New Technologies for Bio-Optical Imaging with Low Phototoxicity</i>	Jinggangshan, China
[Invited] 第三届全国光子技术论坛	Apr 2023
<i>High-Resolution Imaging Based on Light Field Modulation and Applications</i>	Guangzhou, China
[Invited] International Computational Imaging Conference (CSOE-CITA 2022)	Oct 2022
<i>Live Cell Landscape Imaging Based on Optical Diffraction Tomographic Microscopy</i>	Shanghai, China
[Invited] 5th Optics Young Scientist Summit (OYSS2022)	Sep 2022
<i>High-Resolution Imaging Based on Light Field Modulation and Applications</i>	Fuzhou, China
[Invited] 20th National Symposium on Basic Optics and Optical Physics	Sep 2021
<i>Live Cell Optical Diffraction Tomographic Imaging Based on 4D Spatiotemporal Continuity</i>	Yanji, China
[Invited] The Chinese Optical Society (COS) Academic Conference 2021	Sep 2021
<i>Optical Diffraction Tomographic Microscopy Based on 4D Spatiotemporal Continuity</i>	Shenzhen, China
[Invited] 4th Optics Young Scientist Summit (OYSS2020)	Dec 2020
<i>Optical Diffraction Tomographic Microscopy and Its Applications</i>	Ningbo, China
[Oral] 第二届全国光子技术论坛	Nov 2020
<i>Optical Diffraction Tomographic Microscopy and Its Applications</i>	Guangzhou, China
[Invited] Chinese Electron Microscopy Society Academic Conference 2020	Nov 2020
<i>Live Cell Landscape Imaging Based on Optical Diffraction Tomographic Microscopy</i>	Chendu, China
[Oral] The 12th National Academic Forum on Optical Youth	Nov 2020
<i>Optical Diffraction Tomographic Microscopy and Its Applications</i>	Baoding, China
[Oral] SPIE/COS Photonics Asia 2020	Oct 2020
<i>Super-Resolution Fluorescence Assisted Diffraction Computational Tomography Reveals the Three-Dimensional Land-</i>	

- [Oral] **Digital Holography and Three-Dimensional Imaging, Imaging and Applied Optics Congress** Jun 2020
Super-Resolution Fluorescence Assisted Diffraction Computational Tomography Reveals the Three-Dimensional Land-scape of Cellular Organelle Interactome Webinar
- [Poster] **International Conference on Photonics and Imaging in Biology and Medicine** Sep 2017
Tomographic Diffractive Microscopy for Better 3D Imaging Suzhou, China
- [Poster] **SPIE Optics + Photonics 2017** Aug 2017
Tomographic Diffractive Microscopy for Better 3D Imaging San Diego, USA
- [Oral] **Chinese Physical Society (CPS) Fall Meeting** Aug 2016
Optical Diffraction Tomographic Microscopy Beijing, China

Services

- [Reviewer] Photonics Research, Optics Letters, Optics Express, Advanced Science, APL Photonics, Chinese Journal of Lasers, Acta Optica Sinica
- [Program Committee] Topic 9: Biomedicine and Computational Imaging, International Computational Imaging Conference (CSOE-CITA) 2022, 2023
- [Youth Editor] Chinese Journal of Lasers 2022, 2023
- [Volunteer] SPIE/COS Photonics Asia 2016, 2022
- [President] Peking Univ. Club, SPIE Student Chapter 2017
- [Vice President] Peking Univ. Club, SPIE Student Chapter 2016

Theses

- [Doctoral Thesis] [Research on Optical Diffraction Tomographic Microscopy](#)  Supervisor: Prof. Kebin Shi, Peking University
- [Bachelor Thesis] [Characteristics of Novel Vector Field](#)  Supervisor: Prof. Yongnan Li, Nankai University

Honors & Awards

- [2022] Gan Zizhao Scholarship for Outstanding Postdoctoral Fellows Peking University
- [2022] Important Advance for Institute of Modern Optics Peking University
- [2017] May 4th Scholarship Peking University
- [2017] Individual Honor for Research Excellence Peking University
- [2013] He-Zhang Encouragement Scholarship
 Foundation for the Development of Science and Technology Museums in China
- [2012] National Encouragement Scholarship Nankai University
- [2012] Merit Student Nankai University
- [2011] Outstanding Student Scholarship in Fundamental Science Nankai University