

Puxiang Lai, Ph.D.

Assistant Professor

Department of Biomedical Engineering

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Google Scholar: https://scholar.google.com.hk/citations?hl=en&user=W1_W2Q4AAAAJ

Research Interests

High-resolution deep-tissue optical focusing, imaging, treatment, and stimulation via techniques:

- Optical wavefront shaping
- Photoacoustic/optoacoustic imaging
- Adaptive optics
- Optical microscopy
- Digital holography
- Artificial intelligence

Education and Training

- **NIH Postdoctoral training** (major in Biomedical Optics) Jul. 2010 – Aug. 2015
Department of Biomedical Engineering, Washington University in St. Louis, USA
Mentor: Professor Lihong V. Wang (National Academy of Engineering, USA)
- **Doctor of Philosophy** (major in Biomedical Ultrasound and Optics) Sep. 2005 – Jan. 2011
Department of Mechanical Engineering, Boston University, USA
Co-advisors: Professor Ronald A. Roy (U. of Oxford, UK) and Professor Todd W. Murray
- **Master of Science** (major in Physical Acoustics) Sep. 2002 – Jul. 2005
Institute of Acoustics, Chinese Academy of Sciences, China
Co-advisors: Professor Bixing Zhang and Professor Chenghao Wang (Academician)
- **Bachelor of Engineering** (major in Biomedical Engineering) Sep. 1998 – Jul. 2002
Department of Biomedical Engineering, Tsinghua University, China
Co-advisors: Professor Guangzhi Wang and Professor Haishu Ding

Working Experience

- **Assistant Professor (tenure-track)** Sep. 2015 – Present

Biophotonics Lab, Department of Biomedical Engineering, Hong Kong Polytechnic University, Hong Kong SAR, China

- **Associate Professor** Jan. 2017 – Present
Hong Kong Polytechnic University Shenzhen Research Institute, Shenzhen, China
- **Postdoctoral Research Associate** Jul. 2010 – Aug. 2015
Optical Imaging Laboratory, Department of Biomedical Engineering, Washington University in St. Louis, USA
- **Graduate Research Assistant (Ph.D.)** Sep. 2005 – Jun. 2010
Physical Acoustics Lab, Dept. of Mechanical Engineering, Boston University, USA
- **Graduate Research Assistant (M.S.)** Sep. 2002 – Jul. 2005
Institute of Acoustics, Chinese Academy of Sciences, Beijing, China

Research Grants (with allocation)

(Allocated budget: ~16 million HKD in total by May 2020)

- 1) Major Equipment Fund (2015-2018, **PI**), 1,450,000 HKD, No. 1-DDZK, Hong Kong Polytechnic University, Hong Kong
- 2) Startup Fund (2015-2018, **PI**), 500,000 HKD, "Deep-Tissue Optical Focusing and its Applications in Biomedicine", No. 1-ZE5D, Hong Kong Polytechnic University, Hong Kong
- 3) Early Career Scheme (2017-2019, **PI**), 782,164 HKD, "Deep-Tissue Optical Focusing towards in vivo by Fast Photoacoustically guided Wavefront Shaping (PAWS)", No. 25204416, Hong Kong Research Grant Council (RGC), Hong Kong
- 4) General Research Scheme (2017-2020, **PI**), 580,000 RMB, "Noninvasive high-resolution optical focusing in deep living biological tissue and its applications", No. 81671726, National Natural Science Foundation of China (NSFC), China
- 5) National Key Instrumentation Development Scheme (2017-2021, **Co-PI**), 6,350,000 RMB (1/3 allocated to me), "Development and application of small-animal whole-body high-speed photoacoustic molecular imaging instrument", No. 81627805, National Natural Science Foundation of China (NSFC), China
- 6) Shenzhen Basic Research Funding Scheme (2018-2020, **PI**), 500,000 RMB, "Multi-mode fiber-based fast wavefront shaping and its pilot applications in biomedical imaging and sensing", No. JCYJ20170818104421564, Shenzhen Science and Technology Innovation Commission, Shenzhen, China
- 7) Innovation and Technology Support Program, Tier 3 (2019-2020, **PI**), 1,353,550 HKD, "Development of Aggregation Induced Emission-Boosted Adaptive Optical Microscopy for Enhanced Molecular Imaging", No. ITS/022/18, Innovation and Technology Commission (ITC), Hong Kong
- 8) PolyU (2019-2020, **PI**), 200,000 HKD, "Development of Novel Internal Guidestars for Digital Optical Phase Conjugation and Adaptive Optics towards Enhanced Optical Focusing and Imaging at Depths", No. G-YBZ2, Hong Kong Polytechnic University, Hong Kong

- 9) Guangdong Province Basic Research Scheme (2019-2021, **PI**), 100,000 RMB, "Optical focusing through multimode fibers based on reflection mode transmission matrix and its perspectives in biomedicine", No. 2019A1515011374, Department of Science and Technology of Guangdong Province (GDSTC), China
- 10) NSFC Key Research Scheme (2020-2024, **PI**), 2,970,000 RMB, "Multiscale photoacoustic molecular imaging for early diagnosis of brain glioma", No. 81930048, National Natural Science Foundation of China (NSFC), China
- 11) 廣東特支計劃光纖光子學團隊, (2020-2024, **Co-PI**), 20,000,000 RMB (10% allocated to me), "光纖生物醫學傳感及成像技術", Department of Science and Technology of Guangdong Province (GDSTC), China.
- 12) Research Impact Fund (2020-2024, **Co-PI**), 6,000,000 HKD (~12% allocated to me), "Forward-looking intravascular photoacoustic/ultrasound imaging technology for the assessment and guidance of cardiovascular chronic total occlusion intervention", No. R5029-19, Hong Kong Research Grant Council (RGC), Hong Kong
- 13) Innovation and Technology Fund - Guangdong-Hong Kong Technology Cooperation Funding Scheme (ITF-TCFS), (2021-2022, **PI**), 2,110,500 HKD, "Multiscale photoacoustic imaging for small animal myocardial microcirculation evaluation", No. GHP/043/19SZ Innovation and Technology Commission (ITC), Hong Kong, September 2020.

Teaching Grants

- Ten Thousand People's Scheme (万人计划) 2019 (**PI**), 92,400 RMB, "2019 临床医学影像学暑期实习项目", 合作方: 华中科技大学同济医学院附属协和医院

Selected Awards and Honors

- The Faculty Merit Award for Outstanding Achievement in Research, The Hong Kong Polytechnic University, Faculty of Engineering, August 14, 2020
- K.C. Wong Belt and Road Visiting Fellowship Scheme, The Hong Kong Polytechnic University, December 2019
- Research Grant Achievement Award, The Hong Kong Polytechnic University, Faculty of Engineering, March 2018
- Hong Kong RGC Early Career Award, October 2016
- 12th National 1000 Talent Plan Youth Scholar, January 2016

Professional Activities

Teaching:

- Fundamentals of Biomedical Instrumentation II (PolyU BME31121)
- Biosignal Processing (PolyU BME31116)
- Molecular and Functional Imaging: From Body System to Molecules (PolyU BME5051)

University/Departmental service

- University Research Committee, the Human Subjects Ethics Sub-committee member (1 July, 2019 – 30 June, 2021)

- Departmental Management Committee (DMC) member (1 July, 2019 — 30 June, 2020)
- Departmental Health, Safety and Environmental Committee (1 July, 2019 — 30 June, 2020)
- Departmental Research Committee (DRC) member
- Enrollment Liaison Officer for Chinese Mainland (JEE) Admission

Membership

- The Optical Society of America (OSA)
- The International Society for Optics and Photonics (SPIE)
- Institute of Electrical and Electronics Engineers (IEEE)
- World Association for Chinese Biomedical Engineers (WACBE), Lifetime member
- Chinese Society of Biomedical Engineering (CSBME), Senior member
- Chinese Optical Society (COS), Senior member

Journal editor

- Associate Editor, Journal of Visual Computing for Industry, Biomedicine, and Art (VCIBA) (under Springer), since 2019.
- Editorial board member and guest editor, Journal of Innovative Optics in Health and Science (JIOHS; SCI indexed), since 2018.

Journal referee (alphabetically):

- ACS Sensor
- Analyst
- Applied Physics Letters
- APL Photonics
- Applied Optics
- Applied Sciences
- Biomedical Optics Express
- Chinese Journal of Acoustics
- Chinese Optics Letters
- Frontiers of Optoelectronics
- IEEE Journal of Transactions on Biomedical Engineering (TBME)
- IEEE Journal of Selected Topics in Quantum Electronics (JSTQE)
- IEEE Photonics Journal
- Journal of Acoustical Society of America (JASA)
- Journal of Applied Physics
- Journal of Biomedical Optics (JBO)
- Journal of Innovative Optical Health Sciences (JIOHS)
- Journal of the Optical Society of America A (JOSA A)
- Journal of Physics D: Applied Physics
- Measurement Science and Technology
- Nature Photonics
- Optica
- Optical Engineering
- Optics and Lasers in Engineering
- Optics Express

- Optics Letters
- OSA Continuum
- Photoacoustics
- Physica Scripta
- Physics in Medicine and Biology
- Review of Scientific Instruments
- Sensors
- Scientific Reports
- Ultrasonics
- Ultrasound in Medicine and Biology
- Visual Computing for Industry, Biomedicine, and Art

Other professional service:

- 主审，深圳市科创委 2020 年“新型冠状病毒感染应急防治”专项自由申报项目远程答辩评审会，2020
- Session organizer and chair, SC3: Optical Wavefront Engineering: Inverse or Compensate Scattering in Complex Media in Photonics & Electromagnetics Research Symposium 2019 (PIERS 2019), Xiamen, China, 2019
- Conference Program Committee, Advanced Optical Imaging Technologies II, in SPIE Photonics Asia, Hangzhou, China, 2019.
- Conference Program Committee, International Forum on Microscopy, Beijing, China, 2019
- Conference Program Committee, China Graphics 2019, Kunming, China, 2019.
- Proposal reviewer for European Science Foundation, 2019
- 中国生物医学工程学会生物医学光子学分会委员，2019-
- 编委，人民卫生出版社重点项目《数字化肝胆外科学》，2019
- 评审，深圳市孔雀团队答辩/重点技术攻关项目答辩，医疗仪器组, 2018-
- Session Chair/Presider, the 10th International Conference on Information and Photonics (CIOP 2018), Beijing, China, 2018.
- Proposal reviewer for NSFC (National Natural Science Foundation of China), 2018
- Proposal reviewer for US-Israel Binational Science Foundation, 2018
- Organizing Committee member, the International Conference on Biomedical Ultrasound 2017 (ICBMU2017), Hong Kong, 2017
- Session Chair, the International Conference on Biomedical Ultrasound 2017 (ICBMU2017), Hong Kong, 2017
- Symposium Chair, 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Minisymposium: Frontiers in Wavefront Shaping Techniques, July 2017
- Associate Editor for the IEEE EMBS Conference Editorial Board (CEB), 39th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, July 2017
- Symposium Chair, the 8th WACBE World Congress on Bioengineering, Special Symposium 3: Light-sound Synergy and Its Applications in Biomedicine, July 2017
- Scientific Program Committee, the 8th WACBE World Congress on Bioengineering, July 2017
- Proposal reviewer for NWO (Netherlands Organization for Scientific Research) and NSFC (National Natural Science Foundation of China), 2017
- Editorial board member of Biomedical Imaging and Bioengineering Journal, January 2017-

- Judge, IEEE EMBS HK-Macau Chapter Student Paper Competition, August 2016
- Session chair, the 8th International Conference on Information Optics and Photonics, Shanghai, China, July 17-20, 2016
- Overseas editorial board member and topic editor, China Medical Devices, 2015-
- Session chair, the East Lake International Forum for Outstanding Overseas Young Scholars, Sub-session of Life Science and Technology, Wuhan, China, May 2015

Journal Publications since 2015

[] represents equal contribution, # represents corresponding authorship.

- 1) [**P. Lai**, L. Wang, J. W. Tay], and L. V. Wang, "Photoacoustically guided wavefront shaping (PAWS) for enhanced optical focusing in scattering media," *Nature Photonics* 9, 126-132 (2015).
- 2) [Y. Liu, **P. Lai**], C. Ma, X. Xu, A. Grabar, and L. V. Wang, "Optical focusing deep inside dynamic scattering media with near-infrared time-reversed ultrasonically encoded (TRUE) light," *Nature Communications* 6:5904 (2015).
- 3) Jingwei Xu, Xiaju Cheng, Fuxian Chen, Weijie Li, Xiaohui Xiao, **Puxiang Lai**, Guopeng Xu, Li Xu, and Yue Pan, "Fabrication of Multifunctional PDA-Coated Gold Nanobones for PA/CT Imaging and Enhanced Synergistic Chemo-photothermal Therapy", *Journal of Materials Science & Technology* (*in press*)
- 4) Li Jin, Jun Zhou, and **Puxiang Lai**[#], "Tunable absorption characteristics in multilayered structures with graphene for biosensing", *Journal of Innovative Optics in Health Science*, doi.org/10.1142/S1793545820500170 (*in press*)
- 5) [Zihao Li, Zhipeng Yu, Hui Hui], Huanhao Li, Tianting Zhong, Honglin Liu, and **Puxiang Lai**[#], "Edge enhancement through scattering media enabled by optical wavefront shaping", *Photonics Research* 8(6), 954 (2020)
- 6) Engui Zhao, **Puxiang Lai**, Yongjun Xu, Gang Zhang, and Sijie Chen, "Fluorescent Materials with Aggregation-Induced Emission (AIE) Characteristics for Array-Based Sensing Assay", *Frontiers in Chemistry* 8 (288), 10.3389/fchem.2020.00288 (2020)
- 7) [Yingying Zhou, Fei Cao], Huanhao Li, Xiazi Huang, Dongshan Wei, Lidai Wang[#], and **Puxiang Lai**[#], "Photoacoustic imaging of microenvironmental changes in facial cupping therapy", *Biomedical Optics Express* 11(5), 2394-2401 (2020).
- 8) Yingying Zhou, Siyi Liang, Mingsheng Li, Jianbo Chen, Chengbo Liu, **Puxiang Lai**[#], and Lidai Wang[#], "Optical-resolution photoacoustic microscopy with ultrafast dual-wavelength excitation", *Journal of Biophotonics*, e201960229 (2020).
- 9) [Xiazi Huang, Wenting Shang], Han Deng, Yingying Zhou, Fei Cao, Chihua Fang, **Puxiang Lai**[#], and Jie Tian[#], "Clothing Spiny Nanoprobes against the Mononuclear Phagocyte System Clearance *in vivo*: Photoacoustic Diagnosis and Photothermal Treatment of Early Stage Liver

- Cancer with Erythrocyte Membrane-Camouflaged Gold Nanostars", *Applied Materials Today* 18, 100484 (2020).
- 10) [Yunqi Luo, Suxia Yan, Huanhao Li], **Puxiang Lai**[#], and Yuanjin Zheng[#], "Focusing light through scattering media by reinforced hybrid algorithms", *APL Photonics* 5(1), 016109 (2020)
 - 11) Meijun Chen, Honglin Liu[#], Zhentao Liu, **Puxiang Lai**, and Shensheng Han, "Expansion of the FOV in speckle autocorrelation imaging by spatial filtering", *Optics Letters* 44(24), 5997-6000 (2019)
 - 12) Yingying Zhou, Jianbo Chen, Mingsheng Li, **Puxiang Lai**[#], and Lidai Wang[#], "Single-shot linear dichroism optical-resolution photoacoustic microscopy", *Photoacoustics* 16, 100148 (2019)
 - 13) Z. Liu, M. Au, X. Wang, P-M B. Chan, **P. Lai**, L. Sun, Y. Zheng, L. Rong, and C. Wen, "Photoacoustic imaging of synovial tissue hypoxia in experimental post-traumatic osteoarthritis", *Progress in Biophysics and Molecular Biology* 148(11), 12-20 (2019).
 - 14) Huanhao Li, Fei Cao, Yingying Zhou, Zhipeng Yu, and **Puxiang Lai**[#], "Interferometry-free noncontact photoacoustic detection method based on speckle correlation change", *Optics Letters* 44(22), 5481-5484 (2019).
 - 15) Kaiyi Zhu, Borui Zhou, Yueyue Lu, **Puxiang Lai**, Shulian Zhang, and Yidong Tan[#], "Ultrasound modulated laser feedback tomography in reflective mode", *Optics Letters* 44 (22), 5414-5417 (2019)
 - 16) **P. Lai**[#], YK Park, "Introduction to the special issue on high-resolution optical focusing and imaging within or through thick scattering media", *Journal of Innovative Optical Health Sciences* 12 (4), 1902002 (2019).
 - 17) T. Zhong, Z. Yu, H. Li, Z. Li, H. Li, and **P. Lai**[#], "Active wavefront shaping for controlling and improving multimode fiber sensor", *Journal of Innovative Optical Health Sciences*, 12(4), 1942007 (2019).
 - 18) S Cheng, H Li, Y Luo, Y Zheng, and **P. Lai**[#], "Artificial intelligence-assisted light control and computational imaging through scattering media", *Journal of Innovative Optical Health Sciences*, 12 (4), 1930006 (2019).
 - 19) Y. Liu, H. Liu, H. Yan, Y. Liu, J. Zhang, W. Shan, **P. Lai**, H. Li, L. Ren, Z. Li, and L. Nie, "Aggregation-Induced Absorption Enhancement for Deep Near-Infrared II Photoacoustic Imaging of Brain Gliomas In Vivo," *Advanced Science* 6, 1801615 (2019).
 - 20) Z. Yu, M. Xia, H. Li, T. Zhong, F. Zhao, H. Deng, Z. Li, D. Wang, and **P. Lai**[#], "Implementation of digital optical phase conjugation with embedded calibration and phase rectification", *Scientific Reports* 9, 1537 (2019)

- 21) Z. Song, S. Yan, Z. Zang, Y. Fu, D. Wei, H-L Cui, and **P. Lai**, "Temporal and spatial variability of water status in plant leaves by terahertz imaging", *IEEE Transactions on Terahertz Science and Technology* 8, 250-527 (2018).
- 22) J-H Park, Z. Yu, K. Lee, **P. Lai**, and Y. Park, "Perspective: Wavefront shaping techniques for controlling multiple light scattering in biological tissues: toward *in vivo* applications", *APL Photonics* 3(10), 100901 (2018).
- 23) Z. Yu, J. Huangfu, F. Zhao, M. Xia, X. Wu, X. Niu, D. Li, **P. Lai**[#], and D. Wang[#], "Time-reversed magnetically controlled perturbation (TRMCP) optical focusing in scattering media", *Scientific Reports* 8, 2927 (2018).
- 24) Z. Yu, H. Li, and **P. Lai**[#], "Wavefront shaping and its application to enhance photoacoustic imaging", *Journal of Applied Sciences* 7, 1320 (2017).
- 25) F. Cao, Z. Qiu, H. Li, and **P. Lai**[#], "Photoacoustic imaging in oxygen detection," *Journal of Applied Sciences* 7, 1262 (2017).

Patents

1. P. Lai, L. Sun, T. Zhong, and Z. Qiu, "A Method and system for temporal evolutionary optogenetics enabled by optical wavefront shaping", submitted for US/China patents (2018).
2. L. V. Wang, L. Wang, C. Zhang, **P. Lai**, and J. W. Tay, "Systems and Methods of Grueneisen-Relaxation Photoacoustic Microscopy and Photoacoustic Wavefront Shaping", International Patent Number WO 2015/077355 A1/ US Patent No. 20160305914A1 (2016).

Book Chapters

1. Y. Zhou, X. Huang, and **P. Lai**, "光声成像系统在肝脏肿瘤边界界定的研究" in 《数字化肝脏外科学》，人民卫生出版社 (*in press*)
2. X. Xu, C. Ma, **P. Lai**, and L. V. Wang, "Wavefront-engineered optical focusing into scattering media using ultrasound- or perturbation-based guide stars: TRUE, TRAP, SEWS, and PAWS", in "Wavefront Shaping for Biomedical Imaging", doi:10.1017/9781316403938, Cambridge University Press (June, 2019)

Seminars and Invited Talks since 2015

1. "COVID-19 and shining new light into body: Deep-tissue optical focusing, imaging, and stimulation empowered by wavefront shaping and photoacoustics", OSA/SPIE Lighting Up Lives Seminar and International Day of Light Celebrating Forum, Online, 2020 (*invited talk*)
2. "Photoacoustic imaging: principles, implementations, and its preliminary applications", 2019 年分子影像湖北省重点实验室年会, Wuhan, China, 2019 (*invited talk*)
3. "Optical focusing, imaging and stimulation at depths in tissue: past, present, and future", Tsinghua Shenzhen International Graduate School, Shenzhen China, 2019 (*invited seminar*)

4. "High-resolution optical focusing, imaging, and control at depths in tissue", in 2019 China Biomedical Engineering Conference, Jinan, China, 2019 (*invited talk*)
5. "Optical focusing, imaging and stimulation at depths in tissue: past, present, and future", Southern University of Science and Technology, Department of Biomedical Engineering, Shenzhen, China, 2019 (*invited seminar*)
6. "Generalization of deep-learning-based image reconstruction from varied sampled speckles", in SPIE Photonics Asia, Hangzhou, China, 2019 (*invited talk*)
7. "Enhanced Mice Liver Cancer Photoacoustic Diagnosis and Photothermal Treatment with Red Blood Cell Membrane Camouflaged Gold Nanostars", in 2019 International Conference on Molecular Imaging and Minimally Invasive Therapy, Beijing, China, 2019 (*invited talk*)
8. "Optical focusing, imaging and stimulation at depths in tissue: past, present, and future", Peking University, Department of Physics/State Key Lab for Artificial Microstructure and Mesoscopic Physics, Beijing, China, 2019 (*invited seminar*)
9. "Optical imaging through scattering media based on wavefront shaping and deep learning", the International Forum on Microscopy 2019, Beijing, China, 2019 (*invited talk*)
10. "Synergy of light and sound for high-resolution optical focusing, imaging, and stimulation through and within scattering media", SPIE Optics + Photonics, San Diego, USA, 2019 (*invited talk*)
11. "Enhanced in situ Liver Cancer Photoacoustic Imaging and Photothermal Therapy in Mice with Red Blood Cell Membranes Camouflaged Gold Nanostars", the 19th IEEE International Conference on Nanotechnology, Macau, China, 2019 (*invited talk*)
12. "Wavefront shaping-enabled optical focusing and its application towards deep-tissue single neuron stimulation", Annual ShanghaiTech Symposium on Information Science and Technology, Shanghai, China, 2019 (*invited talk*)
13. "Photoacoustic Diagnosis and Photothermal Treatment of Early Stage Liver Cancer in vivo assisted by Red Blood Cell Membranes Camouflaged Gold Nanostars", 首届国际数字智能化诊疗技术大会, Guangzhou, China, 2019 (*invited talk*)
14. "Synergy of light and sound for deep-tissue optical imaging and focusing", the 177th Meeting of the Acoustical Society of America, Louisville, KY, USA, 2019 (*invited talk*)
15. "Deep-tissue optical diagnosis, treatment, and stimulation enabled by photoacoustics and wavefront shaping", 中国生物医学工程学会第二届生物医学光子学分会会员代表大会暨学术交流会, Haikou, China, 2019 (*invited talk*)
16. "Wavefront shaping-enabled optical focusing, imaging and stimulation at depths: past, present, and future", South China Normal University, 2019 (*invited seminar*)

17. "Wavefront shaping-enabled optical focusing, imaging and stimulation at depths: past, present, and future", Sun Yat-Sen University, 2019 (*invited seminar*)
18. "Shining focused light into biological tissue: optical imaging and stimulation at depths with wavefront shaping", Chinese Academy of Sciences, Shenzhen Institutes of Advanced Technology, 2019 (*invited seminar*)
19. "肿瘤及其边界的光声成像", 中华医学会第八次全国数字医学学术年会, Fuzhou, China, 2018 (*invited talk*)
20. "基于光声效应和波前整形的生物组织深层微米分辨率光学成像和刺激", 2018 粤港澳大湾区青年科学家微米纳米技术协同创新论坛, Shenzhen, China, 2018 (*invited talk*)
21. "Temporal evolutionary single neuron optogenetics enabled by wavefront shaping – a pilot study", SPIE Photonics Asia, Beijing, China, 2018 (*invited talk*)
22. "High-resolution deep-tissue optical imaging enabled by photoacoustics and wavefront shaping", SPIE Photonics Asia, Beijing, China, 2018 (*invited talk*)
23. "Spatiotemporally evolutionary optogenetics enabled by wavefront shaping", 2018 年中国生物医学工程联合学术年会, Shenzhen, China, 2018 (*invited talk*)
24. "Noninvasive high-resolution optical imaging, focusing, and stimulation at depths in tissue", Ming Wai Lau Center for Reparative Medicine, Karolinska Institutet, Hong Kong, 2018 (*invited seminar*)
25. "Shining new light into biological tissue: High-resolution optical imaging and stimulation at depths enabled by photoacoustics and wavefront shaping", 2018 年第十届分子影像技术进展及应用研讨会, Beijing, China, 2018 (*invited talk*)
26. "Deep-tissue optical imaging, focusing, and stimulation enabled by photoacoustics and wavefront shaping", The Federation of Asian societies for molecular imaging 2018, Xiamen, China, 2018 (*invited talk*)
27. "Synergy of light and sound for deep-tissue biomedical optical focusing and imaging", the 2018 Progress in Electromagnetics Research Symposium (PIERS 2018), Toyama, Japan, 2018 (*invited talk*)
28. "Ultrasound-mediated high-resolution optical focusing and imaging in optically scattering media", the 18th IEEE International Conference on Nanotechnology, Cork, Ireland, 2018 (*invited talk*)
29. "Guide-star assisted optical focusing and imaging at depths in tissue", the 10th International Conference on Information Optics and Photonics (CIOP), Beijing, China, 2018 (*invited talk*)
30. "Synergy of light and sound as well as its applications in biomedicine", Huazhong University of Science and Technology, Tongji Medical School, Union Hospital, 2018 (*invited seminar*)

31. "Exceeding the soft optical depth limitation in tissue with the synergy of light and sound", Dongguan University of Technology, Dongguan, Guangdong, 2018 (*invited seminar*)
32. "Deep-tissue photoacoustic imaging enhanced by wavefront engineering and molecular probes", the 2nd International Conference on Digital Medicine, Guangzhou, Guangdong, 2018 (*invited talk*)
33. "Synergy of light and sound as well as its applications in biomedicine", Institute of Acoustics, Chinese Academy of Sciences, Beijing, China, 2018 (*invited seminar*)
34. "Wavefront shaping-enhanced photoacoustic imaging", the International Conference on Biomedical Ultrasound (ICBMU), Hong Kong, China, 2017 (*invited talk*)
35. "Wavefront Engineering: Shining focused and controllable light in complex media", Shenzhen University, Shenzhen, China, 2017 (*invited seminar*)
36. "Wavefront Engineering: Shining focused and controllable light in complex media", Jinan University, Guangzhou, China, 2017 (*invited seminar*)
37. "Focused and controllable optical delivery in complex media using wavefront shaping", the 14th International Conference on Photonics and Imaging in Biology and Medicine (PIBM 2017), Suzhou, China, 2017 (*invited talk*)
38. "Deep-Tissue Optical Focusing and Control in Action", Institute of Automation, Chinese Academy of Sciences, Beijing, China, 2017 (*invited seminar*)
39. "Reshaping light in deep tissue with ultrasonically guided optical focusing", the 1st International Conference on Optics, Photonics, and Materials, Nice, France, 2016 (*keynote talk*)
40. "Wavefront Engineering-Enabled Optical Focusing at Depths in Scattering Media", Frontiers in Optical Bioimaging Technologies, University of Hong Kong, Hong Kong, 2016 (*invited talk*)
41. "Ultrasonically Guided Optical Focusing: Shining Focused Light into Deep Tissue", the 8th International Conference on Information Optics and Photonics, Shanghai, China, 2016 (*invited talk*)
42. "Ultrasonically Guided Deep-Tissue Optical Focusing in Action", School of Biological Science and Medical Engineering, Beihang University, Beijing, China, 2015 (*invited seminar*)
43. "Focusing Light Deep in Tissue with Ultrasound Guidestars", in Optical Society of America (OSA) Frontiers in Optics & Laser Science 2015, San Jose, CA (USA), 2015 (*invited talk*)
44. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Interdisciplinary Division of Biomedical Engineering, Hong Kong Polytechnic University (Hong Kong), 2015 (*invited seminar*)
45. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Institute of Biomedical Engineering, Graduate School at Shenzhen, Tsinghua University (China), 2015 (*invited seminar*)

46. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences (China), 2015 (*invited seminar*)
47. "Photoacoustically guided wavefront shaping (PAWS) for optical focusing beyond the diffusion limit in scattering media", College of Life Science and Technology, Huazhong University of Science and Technology (China), 2015 (*invited talk and session co-chair*)
48. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Department of Biology, South University of Science and Technology of China (China), 2015 (*invited seminar*)
49. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", College of Optical Science and Engineering, Zhejiang University (China), 2015 (*invited seminar*)
50. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Department of Precision Instrument, Tsinghua University (China), 2015 (*invited seminar*)
51. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Department of Biomedical Engineering, Peking University (China), 2015 (*invited seminar*)
52. "Breaking the Optical Diffusion Limit in Biological Tissue: Ultrasonically Guided Optical Focusing", Department of Biomedical Engineering, Duke University, 2015 (*invited seminar*)