

教师介绍

张丽敏

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个人经历或学术经历: 1999-2003 河北师范大学物理系, 物理专业, 学士; 2003-2006 天津大学理学院, 光学专业, 硕士; 2006-2009 天津大学精密仪器与光电子工程学院, 生物医学工程专业, 博士; 2009-2015 天津大学精密仪器与光电子工程学院, 生物医学工程专业, 讲师; 2014-2015 美国达特茅斯学院 访问学者; 2015- 天津大学精密仪器与光电子工程学院, 生物医学工程专业, 副教授

- 研究方向: 1. 生物医学光学成像; 2. 医用光学检测技术与系统;

科研项目、成果和专利

科研项目

- 1. 天津市应用基础与前沿技术研究计划(面上项目), 18JCYBJC29400, 基于动态荧光扩散层析和非线性透皮技术的早期肿瘤组织荧光剂药代动力学多参数成像研究, 2018.4-2021.3, 10万, 在研, 主持。; 2. 国家自然科学基金面上项目, 81671728, "面向早期乳腺癌诊断的MRI引导扩散光层析成像先进方法", 2017.1-2020.12, 56万, 在研, 主持。; 3. 基于XCT/FMT成像技术的肿瘤组织荧光剂药代动力学关键技术研究, 61475115, 国家自然科学基金面上基金项目, 2015.1-2018.12, 80万, 结题, 主持。; 4. 基于辐射传输方程高阶近似的时域荧光分子层析, 61108081, 国家自然科学基金青年基金项目, 2012.1-2014.12, 25万, 结题, 主持。; 5. 面向小动物生物学研究的时域荧光分子层析成像先进技术, 14JCQNJC14400, 天津市自然科学基金青年项目, 2014.4-2017.3, 6万, 结题, 主持。; 6. 活体小动物时域荧光分子层析方法研究, 20110032120069, 博士点新教师基金, 2012.1-2014.12, 4万, 结题, 主持。; 7. 天津大学北洋青年骨干教师自主创新基金, 2015.1-2016.12, 10万, 结题, 主持。; 8. 面向肿瘤恶性生物学研究的小动物全身XCT/DOT/FMT多模态成像先进方法, 81371602, 国家自然科学基金面上基金项目, 2014.01 - 2017.12, 100万, 结题, 参与。; 9. 基于扩散光学层析支持的小动物定量荧光层析成像方法研究, 81401453, 国家自然科学基金青年基金项目, 2015.01 - 2017.12, 23万, 结题, 参与。; 10. 基于二维相关谱测伪牛奶检测的方法研究, 31201359, 国家自然科学基金青年基金项目, 2013.01 - 2015.12, 20万元, 结题, 参与。; 11. 面向肿瘤恶性生物学研究的小动物全身DOT/FMT混合成像方法, 20120032110056, 教育部高等学校博士学科点专项科研基金, 2013.1-2015.12, 结题, 参与。; 12. 多模态光学分子层析中目标体光学结构的在线获取方法研究, 30970775, 国家自然科学基金, 2010.1-2012.12, 33万, 结题, 参与。; 13. 时域三维荧光寿命层析成像在乳腺癌诊断的关键问题研究, 30870657, 2009.01 - 2011.12, 32万元, 结题, 参与。; 14. 荧光早期乳腺癌层析成像技术与诊断系统, 2009AA02Z413, 863计划, 2009.1-2011.12, 150万, 结题, 参与。; 15. 荧光-光学双模态乳腺层析成像技术及系统研究, 10JCZDJC17300, 天津市自然科学基金重点项目, 2010.4-2013.3, 20万, 结题, 参与。

授权发明专利

- 1. 高峰, 李妍, 赵会娟, 张丽敏, 伪CT扫描模式多光谱时域荧光分子层析测量系统, 中国发明专利, 专利号: 201010167623.X。; 2. 高峰, 李妍, 张丽敏, 赵会娟, 量构混浊介质光学参数的时间分辨测量系统及方法, 中国发明专利, 专利号: 200910069698.1。; 3. 高峰, 张伟, 武林金, 李妍, 马文娟, 周仲兴, 张丽敏, 赵会娟, 荧光-光学联合断层成像系统及测量方法, 中国发明专利, 专利号: 201210408665.7。; 4. 高峰, 马艺刚, 赵会娟, 张丽敏, 和晋园, "面向小动物分子成像的时域荧光扩散层析系统", 中国发明专利, 专利号: ZL200810052363.4。; 5. 高峰, 王欣, 张雅洁, 张丽敏, 赵会娟, 螺旋式函数扫描式荧光剂药代动力学参数直接成像方法, 申请号: 201610137371.3, (2019年3月授权)

论文、专著

期刊论文:

- 1. Yanqi Zhang, Limin Zhang*, Guoyan Yin, Wenjuan Ma, Jiao Li, Zhongxing Zhou, Feng Gao*, In Vivo Pharmacokinetics Assessment of Indocyanine Green-Loaded Nanoparticles in Tumor Tissue with a Dynamic Diffuse Fluorescence Tomography System, Mol Imaging Biol, DOI: 10.1007/s11307-019-01340-7, 2019。; 2. Yanqi Zhang, Limin Zhang*, Guoyan Yin, Wenjuan Ma, and Feng Gao*, "Assessing indocyanine green pharmacokinetics in mouse liver with a dynamic diffuse fluorescence tomography system," J. Biophotonics 11: e201800041, 2018。; 3. Limin Zhang, Shudong Jiang, Yan Zhao, Feng, Jinchao, Brian W. Pogue, and Keith D. Paulsen*, Direct regularization from co-registered contrast MRI improves image quality of MRI-guided near-infrared spectral tomography of breast lesions, IEEE Transactions on Medical Imaging, 37 (5): 1247-1252, 2018。; 4. Limin Zhang, Yan Zhao, Shudong Jiang, Brian W. Pogue, and Keith D. Paulsen*, Direct regularization from co-registered anatomical images for MRI-guided near infrared spectral tomographic image reconstruction, Biomedical Optics Express, 2015, 6(9):3618-3630。; 5. Limin Zhang, Xi Yi, Jiao Li, Zhao, Huijuan Zhao, and Feng Gao, "Analytical Green's function for the fluorescence simplified spherical harmonics equations in turbid medium", J. Biomed. Opt., 2014, 19 (7): 070503。; 6. Limin Zhang, Jiao Li, Xi Yi, Huijuan Zhao, and Feng Gao, "Analytical solutions to the simplified spherical harmonics equations using eigen-decompositions", Optics Letters, 2013, 38(24): 5462-5465。; 7. Yihan Wang, Tong Lu, Jiao Li, Wenbo Wan, Wenjuan Ma, Limin Zhang, Zhongxing Zhou, Jingying Jiang, Huijuan Zhao and Feng Gao*, "Enhancing sparse-view photoacoustic tomography with combined virtually parallel projecting and spatially adaptive filtering", Biomedical Optics Express, 2018, 9(9):4569-4587。; 8. Zhongxing Zhou, Lin Zhang, Balkuan Guo, Wenjuan Ma, Limin Zhang, Jiao Li, Huijuan Zhao, Jingying Jiang, Feng Gao, "Improved phase-attenuation duality method with space-frequency joint domain iterative regularization," Med. Phys. 2018, 45: 3681-3696。; 9. Yihan Wang, Jie He, Jiao Li, Tong Lu, Yong Li, Wenjuan Ma, Limin Zhang, Zhongxing Zhou, Huijuan Zhao and Feng Gao, "Toward whole-body quantitative photoacoustic tomography of small-animals with multi-angle light-sheet illuminations", Biomedical Optics Express, 2017, 8(8): 3778-3795。; 10. Lingling Liu, Wenbo Wan, Zhuaping Qin, Limin Zhang, Jingying Jiang, Yihan Wang, Feng Gao, and Huijuan Zhao, "Determination of optical properties of turbid medium from relative interstitial CW radiance measurements using the incomplete P3 approximation," Optics Express, 2017, 25: 25295-25309。; 11. Yihan Wang, Jiao Li, Tong Lu, Limin Zhang, Zhongxing Zhou, Huijuan Zhao, and Feng Gao?, "Combined diffuse optical tomography and photoacoustic tomography for enhanced functional imaging of small animals: a methodological study on phantoms," Applied Optics 2017, 56(2): 303-311。; 12. Bingyuan Wang, Wenbo Wan, Yihan Wang, Wenjuan Ma, Limin Zhang, Jiao Li, Zhongxing Zhou, Huijuan Zhao, Feng Gao, "An Lp(0<ps1)-norm regularized image reconstruction scheme for breast DOT with non-negative-constraint", BioMedical Engineering OnLine, 2017, 16(1)。; 13. Bingyuan Wang, Weitong Chen, Wenjuan Ma, Jin Qi, Limin Zhang, Huijuan Zhao and Feng Gao, "Reconstruction method of breast diffuse optical tomography based on non-negative-constraint L1-norm regularization", Acta Optica Sinica, 2016, 36(11), 117002。; 14. Wenbo Wan, Lingling Liu, Yihan Wang, Jiao Li, Limin Zhang, Zhongxing Zhou, Huijuan Zhao, and Feng Gao, "Region-based diffuse optical tomography with registered atlas: in vivo acquisition of mouse optical properties," Biomedical Optics Express, 2016, 7(12): 5066-5080。; 15. Mengyu Jia, Huijuan Zhao, Jiao Li, Lingling Liu, Limin Zhang, Jingying Jiang, and Feng Gao, "Coupling between radiative transport and diffusion approximation for enhanced near-field photon-migration modeling based on transient photon kinetics," Journal of Biomedical Optics, 2016, 21(5): 050501。; 16. Xin Wang, Yanqi Zhang, Limin Zhang, Jiao Li, Zhongxing Zhou, Huijuan Zhao, and Feng Gao, "Direct reconstruction in CT-analogous pharmacokinetic diffuse fluorescence tomography: two-dimensional simulative and experimental validations," Journal of Biomedical Optics, 2016, 21(4): 046007。; 17. Xin Wang, Linhui Wu; Xi Yi; Yanqi Zhang; Zhang, Limin; Zhao, Limin Zhang, Huijuan; Feng Gao, Performance Enhancement of Pharmacokinetic Diffuse Fluorescence Tomography by Use of Adaptive Extended Kalman Filtering, Computational and Mathematical Methods in Medicine, 2015, 14: 0~739459。; 18. Linhui Wu, Wenbo Wan, Xin Wang, Zhongxing Zhou, Jiao Li, Limin Zhang, Huijuan Zhao, and Feng Gao, "Shape-parameterized diffuse optical tomography holds promise for sensitivity enhancement of fluorescence molecular tomography," Biomedical Optics Express, 2014, 5(10): 3640-3659。; 19. Jiao Li, Xi Yi, Xin Wang, Yiming Lu, Limin Zhang, Huijuan Zhao, and Feng Gao, "Overlap time-gating approach for improving time-domain diffuse fluorescence tomography based on the IRF-calibrated Born normalization", Optics Letters, 2013, 38(11): 1841-1843。; 20. Wei Zhang, Linhui Wu, Jiao Li, Xi Yi, Xin Wang, Yiming Lu, Weitong Chen, Zhongxing Zhou, Limin Zhang, Huijuan Zhao, and Feng Gao, Combined hemoglobin and fluorescence diffuse optical tomography for breast tumor diagnosis: a pilot study on time-domain methodology, Biomedical Optics Express, 2013, 4(2):331-348。; 21. Jiao Li, Xin Wang, Xi Yi, Limin Zhang, Zhongxing Zhou, Huijuan Zhao, and Feng Gao, "Towards pH-sensitive imaging of small animals with photon-counting difference diffuse fluorescence tomography", J. Biomed. Opt., 2012, 17(9): 096011。; 22. Feng Gao, Jiao Li, Wei Zhang, Xi Yi, Xin Wang, Limin Zhang, Zhongxing Zhou and Huijuan Zhao, "A CT-analogous scheme for time-domain diffuse fluorescence tomography", Journal of X-Ray Science and Technology, 2012, 20(1): 91-105。; 23. Wenjuan Ma, Wei Zhang, Xi Yi, Jiao Li, Linhui Wu, Xin Wang, Limin Zhang, Zhongxing Zhou, Huijuan Zhao and Feng Gao, "Time-domain fluorescence-guided diffuse optical tomography based on the third-order simplified harmonics approximation," Applied Optics, 2012, 51(36): 8656-8668。; 24. Feng Gao, Jiao Li, Limin Zhang, Patrick Poulet, Huijuan Zhao, and Yukio Yamada, "Simultaneous fluorescence yield- and lifetime-tomography from time-resolved transmittances of a small-animal-stimulating phantom", Applied Optics, 2010, 49(16): 3163-3172。; 25. Limin Zhang*, Feng Gao, Huiyuan He, and Huijuan Zhao, "Three-dimensional scheme for time-domain fluorescence molecular tomography based on Laplace transforms with noise-robust factors," Optics Express, 16(17), 2008, 7214-7223。; 26. Feng Gao, Huijuan Zhao, Limin Zhang, Yukari Tanikawa, Andhi Marjono, and Yukio Yamada, "A self-normalized, full time-resolved method for fluorescence diffuse optical tomography," Optics Express, 16(17), 2008, 13104-13121。; 27. Feng Gao, Limin Zhang, Jiao Li, and Huijuan Zhao, "Experimental validation for time-domain fluorescence diffuse optical tomography of linear scheme," Chinese Optics Letters, 6(12), 2008, 889-892。; 28. Zhang Limin*, Ruan Pingqiao, Gao Feng, Zhao Huijuan, "A linear featured-data scheme for image reconstruction in time-domain fluorescence molecular tomography," Acta Photonica Sinica, 37(2), 2008, 345-350。; 29. Zhang Limin*, He Huiyuan, Gao Feng, Zhao Huijuan, "Image reconstruction in fluorescence molecular tomography based on full time-resolved scheme," Acta Optica Sinica, 28(7) 2008, 1262-1268。; 30. 张丽敏, 王欣, 尹恩艳, 李妍, 马文娟, 周仲兴, 赵会娟, 高峰, 张丽敏*, 面向咽喉癌药代动力学成像的荧光实验系统, 中国激光, 2017, 44(1), 0107001。; 31. 刘洪玲, 李晨阳, 方文博, 曹晨亮, 贾梦宇, 张丽敏, 高峰, 赵会娟, 无限介质中近场辐射率的PS近似, 光子学报, 2016, 45(2), 0217001。; 32. 赵会娟, 陈彩霞, 刘明, 秦婉萍, 张耀, 张丽敏, 李妍, 周仲兴, 高峰*, 面向近红外脑功能成像的光学引导非侵入式成像方法, 光子学报, 2016, 45(11), 1117001。; 33. 高峰, 李妍, 张丽敏, 赵会娟; "基于透射解析模型的时域扩散荧光层析原理与实验研究"; 天津大学学报; 2010, 43(6):557-561。; 34. 李妍, 高峰, 易霞, 张丽敏, 赵会娟; "基于二维解析模型模型的时域扩散荧光层析原理与实验研究"; 中国激光; 2010, 37(11): 2743-2748。; 35. 张丽敏, 高峰, 李妍, 赵会娟, "基于透射和反射时间分辨测量数据的荧光参数三维重建", 中国激光, 2009, 36(10): 2552-2556。

代表性会议论文:

- 36. Yanqi Zhang; Guoyan Yin; Huijuan Zhao; Wenjuan Ma; Feng Gao; Limin Zhang*, Assessing pharmacokinetics of indocyanine green-loaded nanoparticle in tumor with a dynamic diffuse fluorescence tomography system, Proc. SPIE, Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues XVI, 2018。; 37. Wenwen Du; Guoyan Yin; Yanqi Zhang; Huijuan Zhao; Feng Gao; Limin Zhang*, Highly-sensitive and large-dynamic diffuse optical tomography system for breast tumor detection, Proc. SPIE, High-Speed Biomedical Imaging and Spectroscopy III: Toward Big Data Instrumentation and Management, 2018.1.28。; 38. Yanqi Zhang; Xin Wang; Guoyan Yin; Jiao Li; Zhongxing Zhou; Huijuan Zhao; Feng Gao; Limin Zhang*, Preliminary experiments on pharmacokinetic diffuse fluorescence tomography of CT-scanning mode, Proc. SPIE, Optics in Health Care and Biomedical Optics VII, 2016.10.12。; 39. Limin Zhang*, Wei Zhang, Feng Gao, Jiao Li, and Huijuan Zhao, "Analytical solutions of the simplified spherical harmonics equations for infinite and semi-infinite scattering medium based on Eigen method", Proc. SPIE8578, Optical Tomography and Spectroscopy of Tissue X, 85782G, 2013。; 40. Limin Zhang*, Wei Zhang, Feng Gao, Jiao Li, and Huijuan Zhao, "Fluorescence guided diffusion optical tomography based on wavelet transform and singular value decomposition," Proc. SPIE 8216: 821610, 2012。; 41. Limin Zhang*, Wei Zhang, Feng Gao, Jiao Li and Huijuan Zhao, "An Investigation on Fluorescent-Optical Dual-Mode Tomography Using Time-resolved Data," Proc.SPIE,7892,2011。; 42. Limin Zhang*, Feng Gao, Jiao Li, and Huijuan Zhao, "Reconstructing fluorescent parameters using time-resolved data based on experimental measurement," in Multimodal Biomedical Imaging V, F.S. Azar, X. Intes, eds., Proc. SPIE 7557: 75570Q, 2010。; 43. Limin Zhang*, Jiao Li, Feng Gao, Huiyuan He, and Huijuan Zhao, "Time-domain fluorescence molecular tomography based on experimental data," in Optical Tomography and Spectroscopy of Tissue VIII (BIO/S2009), B.J. Tromberg, A.G. Yodh, M. Tamura, E.M. Sevick-Muraca, R.R. Alfano, eds., Proc. SPIE 7174: 71741O, 2009。; 44. Limin Zhang*, Feng Gao, Huiyuan He, Yiwon Ma, Pingqiao Ruan, and Huijuan Zhao, "Three-dimensional image reconstruction for time-domain fluorescence molecular tomography based on generalized pulse spectrum technique," Proc.SPIE,6826,2008。

奖励、荣誉

- 2014.12 获天津大学北洋青年骨干教师荣誉; 2014.11 天津市优秀教学团队

学术、社会团体任职情况

- 1. 中国光学学会---生物医学光子学专业委员会, 青年委员; 2. 中国生物医学工程学会---生物医学光子学分会, 青年委员; 3. 天津市口腔医学工程学会, 青年委员; 4. Journal of Biomedical Optics, Medical Physics, Chinese Optics Letters等国内外知名期刊的评审人; 5. 国家自然科学基金评审人。

科技链接: 国家自然科学基金委员会, 网络信息, 天大科研院, 天津市科委, 中国发改委, 中国科技部; 教学链接: 中国教育部, 教育部, 天津大学, 天津市教委; 校内链接: 天津大学, 天津大学图书馆, 教育经济信息网, 天津大学, 天津大学; 国际合作与交流处, 天津大学, 天津大学, 天津大学, 天津大学, 天津大学, 天外天