原子分子与光物理

马辉教授

深圳研究生院D203

深圳

电话：0755-26036238

传真：0755-26036238

mahui@tsinghua.edu.cn (mailto:mahui@tsinghua.edu.cn)

个人网页：lois.sz.tsinghua.edu.cn (http://lois.sz.tsinghua.edu.cn)

个人简历

教育履历

82年吉林大学物理系学士；

82-83长春光机所硕士生；

88年英国伦敦大学帝国理工学院原子分子物理专业博士。

工作经历

88-89帝国理工学院激光联合体博士后；

89-91大连化物所博士后；

91-现在清华大学物理系，任讲师、副教授、教授；

03年-现在清华大学深圳研究生院教授。

教学

北京：本科《大学物理（英文）》；研究生《原子分子物理实验方法》；原子分子物理专题

深圳：研究生《生物医学光子学》

研究领域

生物光子学（2006年之前）：包括：共焦与双光子荧光成像、光学二次谐波成像、荧光各向异性度成像、荧光涨落谱，上述方法在生命科学研究中的应用。

生物医学光学（现在）：基于光散射的无损成像方法及其应用研究，包括：

光学相干断层成像

偏振光散射理论、方法和应用，包括：偏振光散射理论、模型与模拟方法，偏振特征表征与提取方法，偏振敏感测量与成像方法，偏振光散射的应用。

奖励、荣誉和学术兼职

生物物理学会现代生物物理技术与方法专业委员会主任

光学学会生物医学光子学专业委员会副主任

生物医学工程学会数字医疗与医学信息化分会常委

电子学会生命电子学分会常委

主要论著

1. Yihong Guo, Nan Zeng, Honghui He, Tianliang Yun, E Du, Ran Liao, Yonghong He, and Hui Ma*. “A study on forward scattering Mueller matrix decomposition in anisotropic medium”, Optics Express,**21**(15):18361-18370, 2013.

2. Honghui He, Nan Zeng, E Du, Yihong Guo, Dongzhi Li, Ran Liao, Yonghong He, and Hui Ma*. “Two-dimensional and surface backscattering Mueller matrices of anisotropic sphere-cylinder scattering media: a quantitative study of influence from fibrous scatterers”, Journal of Biomedical Optics,**18**(4):046002, 2013.

3. Dongzhi Li, Honghui He, Nan Zeng, E Du, Ran Liao, Yonghong He, Hui Ma*, Shaoxiong Liu, and Minghua Li. “Polarization imaging and scattering model of cancerous liver tissues”, Journal of Innovative Optical Health Sciences,**6**(3):1350025, 2013.

4. E Du, Honghui He, Nan Zeng, Celong Liu, Yihong Guo, Ran Liao, Minghao Sun, Yonghong He, and Hui Ma*. “Characteristic features of Mueller matrix patterns for polarization scattering model of biological tissues”, Journal of Innovative Optical Health Sciences,**6**(4):1350028, 2013.

5. Honghui He, Nan Zeng, Tianliang Yun, Yonghong He, and Hui Ma*. “Linear polarization reflectance of anisotropic scattering medium”, Optik,**124**(17):2619-2622, 2013.

6. Honghui He, Nan Zeng, E Du, Yihong Guo, Dongzhi Li, Ran Liao, and Hui Ma*. “A possible quantitative Mueller matrix transformation technique for anisotropic scattering media”, Photonics & Lasers in Medicine,**2**(2):129-137, 2013.

7. E Du, Honghui He, Nan Zeng, Yihong Guo, Ran Liao, Yonghong He, and Hui Ma*. “Two-dimensional backscattering Mueller matrix of sphere–cylinder birefringence media”, Journal of Biomedical Optics,**17**(12):126016, 2012.

8. Honghui He, Nan Zeng, Dongzhi Li, Ran Liao, and Hui Ma*. “Quantitative Mueller matrix polarimetry techniques for biological tissues”, Journal of Innovative Optical Health Sciences, 5(3):1250017, 2012.

9. Ran Liao, Nan Zeng, Dongzhi Li, Tianliang Yun, Yonghong He, and Hui Ma*. “Penetration depth of linear polarization imaging for two-layer anisotropic samples”, Applied Optics,**50**(23):4681-4687, 2011.

10. Honghui He, Nan Zeng, Wei Li, Tianliang Yun, Ran Liao, Yonghong He, and Hui Ma*. “Two-dimensional backscattering Mueller matrix of sphere-cylinder scattering medium”, Optics Letters,**35**(14):2323-2325, 2010.

11. Honghui He, Nan Zeng, Ran Liao, Tianliang Yun, Wei Li, Yonghong He, and Hui Ma*. "Application of sphere-cylinder scattering model to skeletal muscle", Optics Express,**18**(14):15104-15112, 2010.

12. Ran Liao, Nan Zeng, Xiaoyu Jiang, Dongzhi Li, Tianliang Yun, Yonghong He, and Hui Ma*. "Rotating linear polarization imaging for quantitative characterization of anisotropic tissues", Journal of Biomedical Optics,**15**(3), 2010.

13. Ran Liao, Nan Zeng, Dongzhi Li, Tianliang Yun, Yonghong He, and Hui Ma*. "A study on penetration depth of polarization imaging", Journal of Innovative Optical Health Sciences,**3**(3):177-181, 2010.

14. Tianliang Yun, Nan Zeng, Wei Li, Dongzhi Li, Xiaoyu Jiang, and Hui Ma*. "Monte Carlo simulation of polarized photon scattering in anisotropic media", Optics Express,**17**(19):16590-16602, 2009.

15. Nan Zeng, Xiaoyu Jiang, Qiang Gao, Yonghong He, and Hui Ma*. "Linear polarization difference imaging and its potential applications", Applied Optics,**48**(35):6734-6739, 2009.

16. Tianliang Yun, Wei Li, Xiaoyu Jiang, and Hui Ma*. "Monte Carlo simulation of polarized light scattering in tissues", Journal of Innovative Optical Health Sciences,**2**(2):131-135, 2009.

17. Xiaoyu Jiang, Nan Zeng, Yonghong He, and Hui Ma*. "Investigation of linear polarization difference imaging based on rotation of incident and backscattered polarization angles", Progress in Biochemistry and Biophysics,**34**(6):659-663, 2007.

18. Wei Li, Yi Wang, Hanrong Shao, Yonghong He, and Hui Ma*. "Probing rotation dynamics of biomolecules using polarization based fluorescence microscopy", Microscopy Research and Technique,**70**(4):390-395, 2007.

19. Jun Xu*, Jin Bao, Baohua Guo, Hui Ma*, Tianliang Yun, Liang Gao, Guoqiang Chen, and Tadahisa Iwata. "Imaging of nonlinear optical response in biopolyesters via second harmonic generation microscopy and its dependence on the crystalline structures", Polymer,**48**(1):348-355, 2007.

20. Yonghong Shao, Yonghong He, Hui Ma*, Nan Nan, Longsheng Qian, and Shuxia Wang. "Carotenoid levels measured by resonance raman in vivo", Spectroscopy and Spectral Analysis,**27**(11):2258-2261, 2007.

21. Fanbo Meng, and Hui Ma*. "A comparison between photon counting histogram and fluorescence intensity distribution analysis", Journal of Physical Chemistry B,**110**(51):25716-25720, 2006.

22. Fanbo Meng, and Hui Ma*. "Extended photon counting histogram and fluorescence intensity distribution analysis approaches for optically biased photon counting statistics", Journal of Physical Chemistry B,**110**(19):9667-9673, 2006.

23. Hanrong Shao, Yonghong He, Wei Li, and Hui Ma*. "Polarization-degree imaging contrast in turbid media: a quantitative study", Applied Optics,**45**(18):4491-4496, 2006.

24. Fanbo Meng, and Hui Ma*. "Fluorescence correlation spectroscopy analysis of diffusion in a laser gradient field: A numerical approach", Journal of Physical Chemistry B,**109**(12):5580-5585, 2005.

25. Fanbo Meng, Bo Chen, Guang Liu, Jianying Ding, and Hui Ma*. "Fluorescence fluctuation spectroscopy and its artifacts: simulations and tests", Science in China Series G-Physics Mechanics & Astronomy,**48**(3):336-344, 2005.

26. Xuefeng Wang, Yi Wang, Yan Jiang, and Hui Ma. "Two-photon fluorescence anisotropy imaging", Progress in Biochemistry and Biophysics,**32**(2):161-167, 2005.

27. Wang J, Ji L, Lin X S, Ma H. Tracking deforming aortas in two-photon autofluorescence images and its application on quantitative evaluation of aorta-related drugs. Computerized Medical Imaging and Graphics, 2004, 28(1-2):51-59.

28. Wang Y, Wang X F, Wang C, Ma H. Simultaneously multi-parameter determination of hematonosis cell apoptosis by two-photon and confocal laser scanning microscopy. Journal of Clinical Laboratory Analysis, 2004, 18(5):271-275.

29. Liu G, Chen B, Meng F B, Ma H, Chen D Y. Fluorescence fluctuation spectroscopy with strong background fluorescence - An Monte Carlo approach. Spectroscopy and Spectral Analysis, 2004, 24(11):1379-1383. (in Chinese)

30. Meng F B, Chen B, Liu G, Ma H. Diffusion in laser gradient field studied by fluorescence correlation spectroscopy. Chinese Physics Letters, 2004, 21(4):760-763.

31. Lin X S, Pan L, Hu J Y, Ma H, Chen D Y. Backward second harmonic generation Imaging of tissues. Progress in Biochemistry and Biophysics, 2004, 31(1):83-88. (in Chinese)

32. Ding J Y, Chen B, Meng F B, Ma H. Fluorescence correlation spectroscopy with saturated excitation. Acta Physica Sinica, 2004, 53(8):2503-2508. (in Chinese)

33. Deng Y, Lin X S, Zheng Z, Deng J G, Chen J C, Ma H, Chen G Q. Poly(hydroxybutyrate-co-hydroxyhexanoate) promoted production of extracellular matrix of articular cartilage chondrocytes in vitro. Biomaterials, 2003, 24(23):4273-4281.

34. Wang J, Ji L, Ma H. Reconstruction of deforming aortas in two-photon autofluorescence image sequences. Applied Optics, 2003, 42(5):834-844.

35. Zhao M, Jin L, Chen B, Ding Y, Ma H, Chen D Y. Afterpulsing and its correction in fluorescence correlation spectroscopy experiments. Applied Optics, 2003, 42(19):4031-4036.

36. Xu H, Zhang C Y, Ma H, Liu B, Chen D Y. Progress in multi-photon excitation and its applications. Progress in Chemistry, 2002, 14(2):81-86. (in Chinese)

37. Zhang C Y, An C C, Wang R Y, Gong Y X, Ma H, Chen D Y, Chen Z L. Capillary electrophoresis and circular dichroism study of trichosanthin and its mutants. Talanta, 2002, 57(3):467-473.

38. Chen B, Meng F B, Ma H, Ding Y, Jin L, Chen D Y. Monte Carlo simulation of FCS in a laser gradient field. Spectroscopy and Spectral Analysis, 2001, 21(3):263-266. (in Chinese)

39. Ci Y X, Zhai Q, Wang S, Chang W B, Zhang C Y, Ma H, Chen D Y, Zhao M Z, Hu S W. Voltammetric studies of the effect of Cisplatin-liposome on Hela cells. Talanta, 2001, 55(4):693-698.

40. Ding Y, Meng F B, Chen B, Ma H, Lei J, Chen D Y. An experimental study on the fluorescence correlation spectroscopy in laser gradient field. Acta Physica Sinica, 2001, 50(11):2269-2274. (in Chinese)

41. Meng F B, Chen B, Ding Y, Ma H, Jin L, Chen D Y. Fluorescence correlation spectroscopy in laser gradient field. Chinese Science Bulletin, 2001, 46(19):1589-1592.

42. Zhang C Y, Gong Y X, Ma H, An C C, Chen D Y. Reactive oxygen species involved in trichosanthin-induced apoptosis of human choriocarcinoma cells. Biochemical Journal, 2001, 355(653-661.

43. Zhang C Y, Gong Y X, Ma H, An C C, Chen D Y. Studying the effect of trichosanthin on choriocarcinoma cells with both two-photon and confocal laser scanning microscopy. Progress in Biochemistry and Biophysics, 2001, 28(5):717-721. (in Chinese)

44. Zhang C Y, Li Y P, Ma H, Li S W, Xue S B, Chen D Y. Effect of BCL-2 on Harringtonine-induced apoptosis and intracellular Ca2+ mobilization in human leukemia HL-60 cells. Research on Chemical Intermediates, 2001, 27(9):991-1000.

45. Zhang C Y, Li Y P, Ma H, Li S W, Xue S B, Chen D Y. Simultaneous multi-parameter observation of Harring-tonine-treating HL-60 cells with both two-photon and confocal laser scanning microscopy. Science in China Series C-Life Sciences, 2001, 44(4):383-391.

46. Zhang C Y, Ma H, Ding Y, Jin L, Chen D Y, Miao Q, Nie S M. Studies on quantum dots-labeled trichosanthin. Chemical Journal of Chinese Universities-Chinese, 2001, 22(1):34-37. (in Chinese)

47. Zhang C Y, Wei T T, Ma H, Ding Y, Chen D Y, Hou J W, Chen C, Xin W J. Reactive oxygen species are involved in nitric oxide-induced apoptosis of neurons. Progress in Biochemistry and Biophysics, 2001, 28(1):81-85. (in Chinese)

48. Zhang C Y, Ma H, Nie S M, Ding Y, Jin L, Chen D Y. Quantum dot-labeled trichosanthin. Analyst, 2000, 125(6):1029-1031.

49. Zhang C Y, Wei T T, Ma H, Chen C, Xin W J, Chen D Y. A photoelectric method for analyzing NO-Induced apoptosis in cultured neuronal cells. Electroanalysis, 2000, 12(17):1414-1418.

50. Wei T T, Zhang C Y, Hou J W, Chen C, Ma H, Chen D Y, Xin W J. Reactive oxygen species are involved in nitric oxide-induced apoptosis in rat cortical neurons. Research on Chemical Intermediates, 2000, 26(9):875-883.