沈李东

基本信息

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专 业: 生态学

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办公地点: 气象楼910

工作单位: 应用气象学院

讲授课程:

招生方向: 生态学、农业资源与环境、环境科学

学 院: 应用气象学院

职 称: 教授/高级

教育与工作经历

沈李东，教授，江苏省优青获得者，应用气象学院生态系主任，“土壤生态学”团队负责人。2014年获浙江大学环境工程专业博士学位，2016.2-2018.2在英国伦敦大学玛丽女王学院从事博士后研究。长期从事土壤碳氮循环与气候变化、微生物生态学等方面的研究。主持国家自然科学基金项目2项，江苏省自然科学基金项目2项。至今，已在PNAS，The ISME Journal，Environmental Microbiology，Water Research，Soil Biology & Biochemistry和Applied and Environmental Microbiology等国际主流杂志上发表SCI检索论文共42篇（第一作者**SCI**论文**24**篇），基于Google Scholar的论文总被引1500余次（H指数24），其中**2**篇**SCI**论文入选全球**Top 1% ESI**高被引论文；授权国家发明专利9项，实用新型专利13项。

主要学习经历

2009.09-2014.06，浙江大学，环境与资源学院，环境工程专业，博士学位

2005.09-2009.06，杭州师范大学，生命与环境科学学院，环境科学专业，学士学位

主要工作经历

2018.07-至今，南京信息工程大学，应用气象学院，生态系，教授

2014.06-2018.07，南京信息工程大学，应用气象学院，农业资源与环境系，讲师

2016.02-2018.02，伦敦大学玛丽女王学院，生物与化学科学学院，博士后

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学术与社会兼职

1、担任Frontiers in Microbiology国际SCI杂志（IF 4.019）编委。

2、担任Nature Communications，Soil Biology & Biochemistry，Water Research，Environmental Pollution，Science of the Total Environment，Microbial Ecology，Frontiers in Microbiology等多个国际SCI杂志的审稿专家。

研究领域与方向

1、全球变化与土壤微生物过程

2、土壤氮素转化及其环境效应

3、土壤温室气体排放机理及减排对策

主要项目、论文、专著和专利

主持项目

1. 2020.01-2023.12，国家自然科学基金面上项目，不同施肥措施对稻田土壤亚硝酸盐和硝酸盐型甲烷厌氧氧化过程的影响研究（No. 41501261），主持，61万元。

2. 2019.07-2022.07，江苏省优秀青年科学基金项目，大气CO_2浓度升高对稻田土壤甲烷好氧氧化与厌氧氧化过程的影响研究（SBK2019030005），主持，50万元。

3. 2016.01-2018.12，国家自然科学基金青年项目，湿地系统反硝化型甲烷厌氧氧化过程及其影响因素研究（No. 41501261），主持，24万元。

4. 2015.07-2018.07，江苏省自然科学基金青年项目，稻田反硝化厌氧甲烷氧化过程及其关键影响因素（No. BK20150893），主持，20万元。

5. 2014.09-2017.09，南京信息工程大学校人才启动基金项目，农田土壤氮循环关键过程及其调控机制研究，主持，10万元。

发表的主要论著

1. **Shen Li-dong**, Ouyang Liao, Zhu Yi-zhu, Mark Trimmer*. Active pathways of anaerobic methane oxidation across contrasting riverbeds. **The ISME Journal**. 2019, 13(3): 752-766. (IF 9.493)
2. **Shen Li-dong**, Ouyang Liao, Zhu Yi-zhu, Mark Trimmer*. Spatial separation of anaerobic ammonium oxidation and nitrite-dependent anaerobic methane oxidation in permeable riverbeds. **Environmental Microbiology**. 2019, doi: 10.1111/1462-2920.14554. (IF 5.147)
3. **Shen Li-dong***, Liu Xu, Wu Hong-sheng. Importance of anaerobic ammonium oxidation as a nitrogen removal pathway in freshwater marsh sediments. **Journal of Applied Microbiology**. 2018, 125(5): 1423-1434.
4. **Shen Li-dong***, Wu Hong-sheng, Liu Xu, Li Ji. Cooccurrence and potential role of nitrite- and nitrate-dependent methanotrophs in freshwater marsh sediments. **Water Research**. 2017, 123: 162-172. (IF 7.913)
5. **Shen Li-dong***, Wu Hong-sheng, Liu Xu, Li Ji. Vertical distribution and activity of anaerobic ammonium-oxidising bacteria in a vegetable field. **Geoderma**. 2017, 288: 56-63.
6. **Shen Li-dong**, Cheng Hai-xiang*, Liu Xu, Li Jian-jun, Liu Yan. Potential role of anammox in nitrogen removal in a freshwater reservoir, Jiulonghu Reservoir (China). **Environmental Science and Pollution Research**. 2017, 24(4): 3890-3899.
7. **Shen Li-dong***, Zheng Pei-hui, Ma Shi-jie. Nitrogen loss through anaerobic ammonium oxidation in agricultural drainage ditches. **Biology and Fertility of Soils**. 2016, 52(2): 127-136.
8. **Shen Li-dong***, Wu Hong-sheng, Gao Zhi-qiu, Liu Xu, Li Ji. Comparison of community structures of *Candidatus* Methylomirabilis oxyfera-like bacteria of NC10 phylum in different freshwater habitats. **Scientific Reports**. 2016, 6: 25647, doi: 10.1038/srep25647.
9. **Shen Li-dong**, Hu Bao-lan*, Liu Shuai, Chai Xiao-ping, He Zhan-fei, Ren Hong-xing, Liu Yan, Geng Sha, Wang Wei, Tang Jing-liang, Wang Yi-ming, Lou Li-ping, Xu Xiang-yang, Zheng Ping. Anaerobic methane oxidation coupled to nitrite reduction can be a potential methane sink in coastal environments. **Applied Microbiology and Biotechnology**. 2016, 100(16): 7171-7180.
10. **Shen Li-dong***, Wu Hong-sheng, Gao Zhi-qiu, Li Ji, Liu Xu. Presence of diverse *Candidatus* Methylomirabilis oxyfera-like bacteria of NC10 phylum in agricultural soils. **Journal of Applied Microbiology**. 2016, 120(6): 1552-1560.
11. **Shen Li-dong**, Wu Hong-sheng, Gao Zhi-qiu*, Cheng Hai-xiang, Li Ji, Liu Xu, Ren Qian-qi. Distribution and activity of anaerobic ammonium oxidising bacteria in natural freshwater

wetland soils. **Applied Microbiology and Biotechnology**. 2016, 100(7): 3291-3300.

12. **Shen Li-dong**, Wu Hong-sheng, Gao Zhi-qiu*, Ruan Yun-jie, Xu Xiang-hua, Li Ji, Ma Shi-jie, Zheng Pei-hui. Evidence for anaerobic ammonium oxidation process in freshwater sediments of aquaculture ponds. **Environmental Science and Pollution Research**. 2016, 23(2): 1344-1352.
13. **Shen Li-dong**, Liu Shuai, He Zhan-fei, Lian Xu, Huang Qian, He Yun-feng, Lou Li-ping, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Depth-specific distribution and importance of nitrite-dependent anaerobic ammonium and methane-oxidising bacteria in an urban wetland. **Soil Biology & Biochemistry**. 2015, 83(1): 43-51. (IF 5.29)
14. **Shen Li-dong**, Wu Hong-sheng, Gao Zhi-qiu*, Xu Xiang-hua, Chen Tie-xi, Liu Shuai, Cheng Hai-xiang. Occurrence and importance of anaerobic ammonium-oxidising bacteria in vegetable soils. **Applied Microbiology and Biotechnology**. 2015, 99(13): 5709-5718.
15. **Shen Li-dong***, Wu Hong-sheng, Gao Zhi-qiu. Distribution and environmental significance of nitrite-dependent anaerobic methane-oxidising bacteria in natural ecosystems. **Applied Microbiology and Biotechnology**. 2015, 99(1): 133-142.
16. **Shen Li-dong***, He Zhan-fei, Wu Hong-sheng, Gao Zhi-qiu. Nitrite-dependent anaerobic methane-oxidising bacteria: unique microorganisms with special properties. **Current Microbiology**. 2015, 70(4): 562-570.
17. **Shen Li-dong**, Huang Qian, He Zhan-fei, Lian Xu, Liu Shuai, He Yun-feng, Lou Li-ping, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Vertical distribution of nitrite-dependent anaerobic methane-oxidising bacteria in natural freshwater wetland soils. **Applied Microbiology and Biotechnology**. 2015, 99(1): 349-357.
18. **Shen Li-dong**, Liu Shuai, Huang Qian, Lian Xu, He Zhan-fei, Jin Ren-cun, He Yun-feng, Lou Li-ping, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Evidence for the cooccurrence of nitrite-dependent anaerobic ammonium and methane oxidation processes in a flooded paddy field. **Applied and Environmental Microbiology**. 2014, 80(24): 7611-7619.
19. **Shen Li-dong**, Zhu Qun, Liu Shuai, Du Ping, Zeng Jiang-ning, Cheng Dong-qing, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Molecular evidence for nitrite-dependent anaerobic methane-oxidising bacteria in the Jiaojiang Estuary of the East Sea (China). **Applied Microbiology and Biotechnology**. 2014, 98(11): 5029-5038.
20. **Shen Li-dong**, Liu Shuai, Zhu Qun, Lou Li-ping, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Distribution and diversity of nitrite-dependent anaerobic methane-oxidising bacteria in the sediments of the Qiantang River. **Microbial Ecology**. 2014, 67(2): 341-349. 【**2016**年入选**ESI**高被引论文； **Environment/Ecology**学术领域中最优秀的**1%**之列】
21. **Shen Li-dong**, Liu Shuai, Liu Wei-ping, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Broad distribution of diverse anaerobic ammonium-oxidising bacteria in Chinese agricultural soils. **Applied and Environmental Microbiology**. 2013, 79(19): 6167-6172.
22. **Shen Li-dong**, He Zhan-fei, Zhu Qun, Cheng Dong-qing, Lou Li-ping, Xu Xiang-yang, Zheng Ping, Hu Bao-lan*. Microbiology, ecology, and application of the nitrite-dependent anaerobic methane oxidation process. **Frontiers in Microbiology**. 2012, 3: 269, doi: org/10.3389/fmicb.2012.00269.
23. **Shen Li-dong**, Chen Peng, He Fan-zhong, Hu An-hui, Zheng Ping, Xu Xiang-yang, Hu Bao-lan*. Metabolic properties of a mixed culture of aerobic ammonia oxidizers and its optimal reaction conditions. **Bioresource Technology**. 2012, 104: 571-578. (IF 6.669)
24. **Shen Li-dong**, Hu An-hui, Jin Ren-cun, Cheng Dong-qing, Zheng Ping, Xu Xiang-yang, Hu Bao-lan*. Enrichment of anammox bacteria from three sludge sources for the startup of monosodium glutamate industrial wastewater treatment system. **Journal of Hazardous Materials**. 2012, 199-200: 193-199. (IF 7.650)
25. Hu Bao-lan, **Shen Li-dong**, Lian Xu, Zhu Qun, Liu Shuai, Huang Qian, He Zhan-fei, Geng Sha, Cheng Dong-qing, Lou Li-ping, Xu Xiang-yang, Zheng Ping, He Yun-feng*. Evidence for nitrite-dependent anaerobic methane oxidation as a previously overlooked microbial methane sink in wetlands. **Proceedings of the National Academy of Sciences of the United States of America**. 2014, 111(12): 4495-4500. (IF 9.58)【**2016**年入选**ESI**高被引论文； **Biology & Biochemistry**学术领域中最优秀的**1%**之列】
26. Wu Hong-sheng*, Zhou Ji, Li Ji, Chen Su-yun, Gao Zhi-qiu, **Shen Li-dong**, Yao Dong-liang, Yang Guang-yao, Ma Xiao-ling, Chen Kai-kai, Wang Cong, Liao Tian-huai. A practice to mitigate greenhouse gases from a wheat-grown soil by the phosphogypsum waste. **International Journal of Global Warming**. 2018, 15(4): 465-485.
27. Wang Jia-qi, **Shen Li-dong**, He Zhan-fei, Hu Jia-jie, Cai Zhao-yang, Zheng Ping, Hu Bao-lan*. Spatial and temporal distribution of nitrite-dependent anaerobic methane-oxidizing

bacteria in an intertidal zone of the East China Sea. **Applied and Microbiology and Biotechnology**. 2017, 101(21): 8007-8014.

28. Li Wei, Shan Xiao-yu, Wang Zhi-yao, Lin Xiao-yu, Li Chen-xu, Cai Chao-yang, Abbas Ghulam, Zhang Meng, **Shen Li-dong**, Hu Zhi-qiang, Zhao He-ping*, Zheng Ping*. Effect of self-alkalization on nitrite accumulation in a high-rate denitrification system: Performance, microflora and enzymatic activities. **Water Research**, 2016, 88(1): 758-765.
29. He Zhan-fei, Geng Sha, **Shen Li-dong**, Lou Li-ping, Zheng Ping, Xu Xin-hua, Hu Bao-lan*. The short- and long-term effects of environmental conditions on anaerobic methane oxidation coupled to nitrite reduction. **Water Research**. 2015, 68: 554-562.
30. He Zhan-fei, Cai Chen, **Shen Li-dong**, Zheng Ping, Xu Xiang-yang, Hu Bao-lan*. Effect of inoculum sources on the enrichment of nitrite-dependent anaerobic methane-oxidizing bacteria. **Applied Microbiology and Biotechnology**. 2015, 99(2): 939-946.
31. Liu Shuai, Ren Hong-xing, **Shen Li-dong**, Lou Li-ping, Tian Guang-ming, Zheng Ping, Hu Bao-lan*. pH levels drive bacterial community structure in the Qiantang River as determined by 454 pyrosequencing. **Frontiers in Microbiology**. 2015, 6: 285, doi: org/10.3389/fmicb.2015.00285.
32. Hu Bao-lan, Liu Shuai, Wang Wei, **Shen Li-dong**, Tian Guang-ming, Xu Xiang-yang, Zheng Ping*. pH-dominated niche segregation of ammonia-oxidising microorganisms in Chinese agricultural soils. **FEMS Microbiology Ecology**. 2014, 90(1): 290-299.
33. Hu Bao-lan, **Shen Li-dong**, Liu Shuai, Cai Chen, Boran Kartal, Harry R. Harhangi, Huub J.M. Op den Camp, Xu Xiang-yang, Zheng Ping*, Mike S.M. Jetten*. Enrichment of an anammox bacterial community from a flooded paddy soil. **Environmental Microbiology Reports**. 2013, 5(3): 483-489.
34. Liu Shuai, **Shen Li-dong**, Lou Li-ping, Tian Guang-ming, Zheng Ping, Hu Bao-lan*. Spatial distribution and factors shaping the niche segregation of ammonia-oxidising microorganisms in Qiantang River, China. **Applied and Environmental Microbiology**. 2013, 79(13): 4065-4071.
35. Chen Ting-ting, Zheng Ping*, **Shen Li-dong**. Growth and metabolism characteristics of anaerobic ammonium-oxidizing bacteria aggregates. **Applied Microbiology and Biotechnology**. 2013, 97(12): 5576-5583.
36. Hu Bao-lan, **Shen Li-dong**, Zheng Ping, Hu An-hui, Cai Chen, Liu Shuai, Lou Li-ping*. Distribution and diversity of anaerobic ammonium-oxidizing bacteria in the sediments of the Qiantang River. **Environmental Microbiology Reports**. 2012, 4(5): 540-547.
37. Hu Bao-lan, **Shen Li-dong**, Du Ping, Zheng Ping, Xu Xiang-yang, Zeng Jiang-ning*. The influence of intense chemical pollution on the community composition, diversity and abundance of anammox bacteria in the Jiaojiang Estuary (China). **PLoS One**. 2012, 7(3): e33826.
38. Chen Ting-ting, Zheng Ping*, **Shen Li-dong**. Dispersal and control of anammox granular sludge at high substrate. **Biotechnology and Bioprocess Engineering**. 2012, 17(5): 1093-1102.
39. Hu Bao-lan, Liu Shuai, **Shen Li-dong**, Zheng Ping, Xu Xiang-yang, Lou Li-ping*. Effect of different ammonia concentrations on community succession of ammonia-oxidizing microorganisms in a simulated paddy soil column. **PLoS One**. 2012, 7(8): e44122.
40. Hu Bao-lan, **Shen Li-dong**, Xu Xiang-yang, Zheng Ping*. Anaerobic ammonium oxidation (anammox) in different natural ecosystems. **Biochemical Society Transactions**. 2011, 39(6): 1811-1816.
41. Chen Ting-ting, Zheng Ping*, **Shen Li-dong**, Ding Shuang, Mahmood Q. Kinetic characteristics and microbial community of Anammox-EGSB reactor. **Journal of Hazardous Materials**. 2011, 190(1-3): 28-35.
42. Hu An-hui, Zheng Ping*, Mahmood Q, Zhang Lei, **Shen Li-dong**, Ding Shuang. Characteristics of nitrogenous substrate conversion by anammox enrichment. **Bioresource Technology**. 2011, 102(2): 536-542.
43. 沈李东*. 亚硝酸盐型甲烷厌氧氧化微生物生态学研究进展. 土壤学报, 2015, 52(4): 1-10.
44. 沈李东*. 亚硝酸盐型甲烷厌氧氧化微生物特性研究进展. 环境科学. 2015, 36(3): 384-391.
45. 沈李东, 胡宝兰, 郑平, 钱轶超, 陈婷婷, 胡安辉, 楼莉萍*. 西湖底泥中厌氧氨氧化菌的分子生物学检测. 环境科学学报. 2011, 31(8): 1609-1615.

46. 沈李东, 郑平, 胡宝兰*. 自然生态系统中的厌氧氨氧化. 生态学报. 2011, 31(15): 4447-4454.

47. 沈李东, 胡宝兰*, 郑平. 甲烷厌氧氧化微生物的研究进展. 土壤学报. 2011, 48(3): 619-628.

48. 朱群, 沈李东, 胡宝兰*, 楼莉萍, 程东庆. 西湖底泥中的反硝化型甲烷厌氧氧化菌的分子生物学检测. 环境科学学报, 2013, 33(5): 1321-1325.

49. 何崭飞, 蔡琛, 沈李东, 徐向阳, 郑平, 胡宝兰*. DAMO过程中甲烷传质模型的建立与验证. 化工学报, 2012, 63(3): 1836-1841. (EI).

50. 杜萍, 刘晶晶, 沈李东, 胡宝兰, 曾江宁, 陈全震*, 寿鹿, 廖一波. Biolog 和PCR-DGGE技术解析椒江口沉积物微生物多样性. 环境科学学报. 2012, 32(6): 1436-1444.

51. 金仁村*, 黄冠男, 沈李东. 厌氧消化工艺的金属抑制现象. 环境污染与防治. 2010, 32(1): 79-84.

授权的国家专利

1. 沈李东，何崭飞. 一种硝酸盐依赖型甲烷厌氧氧化古菌富集装置. 中国实用新型专利. 专利号ZL201520721162.4

2. 胡宝兰，沈李东，叶天强，郑平，陆慧峰，陈小光，蔡琛. 甲烷、硫化氢和氧气含量检测的沼气脱硫自动化控制系统及方法. 中国发明专利，专利号ZL201010256140.7.

3 胡宝兰，沈李东，叶天强，郑平，陆慧峰，陈小光，蔡琛. 一体式沼气生物脱硫装置. 中国发明专利，专利号ZL201010251399.2.

4. 胡宝兰，沈李东，叶天强，郑平，蔡琛，刘帅. 好氧/厌氧一体化沼气安全生物脱硫装置. 中国发明专利，专利号ZL201010269427.3.

5. 胡宝兰，沈李东，郑平，陈建伟，张吉强，陈小光. 模拟自然环境的土壤厌氧氨氧化菌富集系统. 中国发明专利，专利号ZL200910155264.3.

6. 胡宝兰，沈李东，叶天强，郑平，陆慧峰，陈小光，蔡琛. 一种一体式沼气生物脱硫装置. 中国实用新型专利，专利号ZL201020289228.4.

7. 胡宝兰，沈李东，叶天强，郑平，蔡琛，刘帅. 一种好氧/厌氧一体化沼气安全生物脱硫装置. 中国实用新型专利，专利号ZL20102513151.4.

8. 胡宝兰，沈李东，叶天强，郑平，陆慧峰，陈小光，蔡琛.甲烷、硫化氢和氧气含量检测的沼气脱硫自动化控制系统. 中国实用新型专利，专利号ZL201020295573.9.

9. 胡宝兰，沈李东，郑平，陈建伟，张吉强，陈小光. 一种模拟自然环境的土壤厌氧氨氧化菌富集系统. 中国实用新型专利，专利号ZL200920202098.3.

10. 胡宝兰，何崭飞，沈李东，楼莉萍，郑平. 磁搅气升式内循环反硝化型甲烷厌氧氧化菌富集装置及方法. 中国发明专利，专利号ZL201010269427.3.

11. 胡宝兰，何崭飞，蔡琛，沈李东，楼莉萍，郑平，刘帅. 外置式甲烷无泡曝气生物膜反硝化型甲烷厌氧氧化菌富集装置及方法. 中国发明专利，专利号ZL201210014841.9.

12. 郑平，陆慧锋，张萌，沈李东. 一体化沼气安全生物脱硫装置. 中国发明专利，专利号ZL 201010251414.3.

13. 郑平，张萌，陆慧峰，丁爽，沈李东，陈小光. 强化除磷反应器. 中国发明专利，专利号ZL201110121117.8.

14. 郑平，陈小光，胡宝兰，季军远，陆慧峰，张萌，沈李东. 自充氧自搅拌生活污水净化装置. 中国发明专利，专利号ZL201010253534.7.

16. 胡宝兰，何崭飞，沈李东，楼莉萍，郑平.磁搅气升式内循环反硝化型甲烷厌氧氧化菌富集装置. 中国实用型新专利，专利号ZL201220022115.7.

16. 胡宝兰，蔡琛，沈李东，郑平，刘帅，叶天强.一种基于自动化控制的反硝化型甲烷厌氧氧化菌富集系统. 中国实用新型专利，专利号ZL201220030805.2.

17. 胡宝兰，何崭飞，蔡琛，沈李东，楼莉萍，郑平，刘帅.外置式甲烷无泡曝气生物膜反硝化型甲烷厌氧氧化菌富集装置. 中国实用型新专利，专利号

ZL201120553744.8.

18. 胡宝兰，何崭飞，蔡琛，沈李东，楼莉萍，郑平，刘帅. 一种基于自动化控制的浆降式持气内循环反硝化型甲烷厌氧氧化反应器. 中国实用型新专利，专利号ZL201120424351.7.

19. 郑平，陆慧锋，张萌，沈李东. 一种一体化沼气安全生物脱硫装置. 中国实用新型专利，专利号ZL201020289213.8.

20. 郑平，张萌，陆慧峰，丁爽，沈李东，陈小光. 一种强化除磷反应器. 中国实用新型专利，专利号ZL 201120148407.0.

21.郑平，陈小光，胡宝兰，季军远，陆慧峰，张萌，沈李东. 一种自充氧自搅拌生活污水净化装置. 中国实用新型专利，专利号ZL201020292241.5.

获奖情况

1、第八届中国青少年科技创新奖

2、浙江大学优秀博士学位论文

其它学术成果