



师资队伍

教师列表

人才计划

荣誉称号

创新团队

教授副教授

硕士生导师

博士生导师

退休教师

学术先贤

博士后名录

教授

张金波



张金波：教授、博士生导师

联系方式

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办公室地址: 南京师范大学地理科学学院307室

通信地址: 南京师范大学文苑路1号地理科学学院

教育背景

1997-2001, 曲阜师范大学, 地理系, 地理教育专业学士学位

2001-2006, 中国科学院研究生院 (中国科学院东北地理与农业生态研究所), 环境科学专业博士学位

研究经历

2006-2011, 中国科学院南京土壤研究所, 助理研究员、副研究员

2011-至今, 南京师范大学地理科学学院, 副研究员、教授

主要研究方向

土壤氮转化过程及其环境效应

植物对土壤氮转化过程的反馈作用

主要社会兼职

中国土壤学会氮素工作组副主任

中国土壤学会青年工作委员会委员

江苏省地理学会常务理事

江苏省土壤学会理事

荣誉和获奖情况

2019年入选国家“万人计划”青年拔尖人才

2016年入选江苏省中青年领军人才(“333工程”第二层次)

2014年获得吉林省科学技术一等奖(排名第二)

2014年获得江苏省青年地理科技奖

2014年入选江苏省“青蓝工程”培养计划

2012年获得国家优秀青年基金项目

2008年获得首届中国土壤学会优秀青年学者奖

2005年获得中国科学院院长奖优秀奖

近期发表论文 (*通讯作者)

已在the ISME Journal、Global Change and Biology、Earth-Science Reviews、Soil Biology and Biochemistry、Journal of Geophysical Research、Plant and Soil、European Journal of Soil Science、土壤学报、地球科学进展等学术期刊上发表SCI收录论文130篇，中文论文44篇。近期发表论文(第一/通讯)如下:

1) Liu, Siyi; Chi, Qiaodong; Cheng, Yi.;...**Zhang JB***. 2019. Importance of matching soil N transformations, crop N form preference, and climate to enhance crop yield and reducing N loss. SCIENCE OF THE TOTAL ENVIRONMENT, 657, 1265-1273

2) Zhang, Yi; Liu, Siyi; Cheng, Yi.;...**Zhang JB***. 2019. Composition of soil recalcitrant C regulates nitrification rates in acidic soils. GEODERMA, 337, 965-972

3) Cheng, Yi; Wang, Jing; Chang, Scott X.;...**Zhang JB***. 2019. Nitrogen deposition affects both net and gross soil nitrogen transformations in forest ecosystems: A review. ENVIRONMENTAL POLLUTION, 244, 608-616

4) Kou D, Peng YF, Wang GQ, Ding JZ, Chen YL, Yang GB, Fang K, Liu L, Zhang BB, Müller C,**Zhang JB*** and Yang YH*, 2018. Diverse responses of belowground internal nitrogen cycling to increasing aridity. Soil Biology and Biochemistry, 116, 189–192

5) Zhao W,**Zhang JB***, Mueller C et al. 2018. Effects of pH and mineralisation on nitrification in a subtropical acid forest soil. SOIL RESEARCH, 56, 275-283

6) Zhang Y., Zhao W., Cai Z., Müller C.,**Zhang JB***. 2018. Heterotrophic nitrification is responsible for large rates of N₂O emission from subtropical acid forest soil in China. European Journal of Soil Science, 69, 646–654

7)**Zhang JB**, Cai Z, Mueller C. 2018. Terrestrial N cycling associated with climate and plant-specific N preferences: a review. EUROPEAN JOURNAL OF SOIL SCIENCE, 69, 488-501

8) Yang, F., Dai, S., Wang, J., Cheng, Y.,**Zhang, JB.***, C. Müller, Cai, Z. (2018): Nitrite transformations under acidic conditions in temperate and subtropical forest ecosystems. Geoderma, 317, 47–55

9) Dai S, Liu Q, Zhao J, ..**Zhang JB,*** et al. 2018. Ecological niche differentiation of ammonia-oxidising archaea and bacteria in acidic soils due to land use change. SOIL RESEARCH, 56, 71-79.

10) Zhang Y., Ding H....**Zhang JB*** et al. 2018. Soil N transformation mechanisms can effectively conserve N in soil under saturated conditions compared to unsaturated conditions in subtropical China. BIOLOGY AND FERTILITY OF SOILS, 54, 495-507

11) Liu S, ...**Zhang JB.*** et al. 2018. Ridge tillage is likely better than no tillage for 14-year field experiment in black soils: Insights from a ¹⁵N tracing study. SOIL & TILLAGE RESEARCH, 179, 38-46

- 12) Zhao Y,**Zhang JB***, et al. 2018. Temporal variations of crop residue effects on soil N transformation depend on soil properties as well as residue qualities. *BIOLOGY AND FERTILITY OF SOILS*, 54 , 659-669
- 13) Cheng Y,...**Zhang JB*** et al. 2018. Phosphorus addition enhances gross microbial N cycling in phosphorus-poor soils: a N-15 study from two long-term fertilization experiments. *BIOLOGY AND FERTILITY OF SOILS*, 54, 783-789
- 14) Wang, J, Zhao, Y,**Zhang, JB,***et al. 2017. Nitrification is the key process determining N use efficiency in paddy soils.*JOURNAL OF PLANT NUTRITION AND SOIL SCIENCE*,180,648-658
- 15) Dai, S., Wang, J., Cheng, Y.,**Zhang, JB***, Cai, Z. (2017).Effects of long-term fertilization on soil gross N transformation rates and their implications. *Journal of Integrative Agriculture*, 16(12), 2863–2870
- 16) Wang, J,Cheng, Y, Jiang, YJ, Sun, B, Fan, JB,**Zhang, JB***, Müller, C, Cai, ZC. (2017): Effects of 14 years of repeated pig manure applications on gross nitrogen transformations in an upland soil.*Plant and Soil*, 415, 161-173.
- 17) Wang, J.,**Zhang, J.B.***, Müller, C., Cai, Z. (2017): Temperature sensitivity of gross N transformation rates in an alpine meadow on the Qinghai-Tibetan Plateau. *Journal of Soils and Sediments*, 17, 423–431
- 18) Zhang, Y., Zhao, W.,**Zhang, J.B.***,Cai, Z. (2017): N₂O production pathways relate to land use type in acidic soils in subtropical China. *Journal of Soils and Sediments*, 17, 306–314
- 19) Zhao, W.,**Zhang, J.B.***, Müller, C., Cai, Z. (2017): Mechanisms behind the stimulation of nitrification by N input in subtropical acid forest soil. *Journal of Soils and Sediments*,17, 2338-2345
- 20) Liu S, Zhang X, Zhao J*,**Zhang JB***, Müller, C., Cai ZC (2017). Effects of long-term no tillage treatment on gross soil N transformations in black soil in Northeast China. *Geoderma*, 301, 42–46
- 21) Song, L, Tian, P,**Zhang, JB***, Jin, GZ. (2017). Effects of three years of simulated nitrogen deposition on soil nitrogen dynamics and greenhouse gas emissions in a Korean pine plantation of northeast China. *Science of the Total Environment*, 609, 1303-1311
- 22) Wang, J,**Zhang, JB***, Müller, C, Cai, ZC. 2017. Themechanisms ofhigh N₂Oemissions fromgreenhousevegetablefieldsoils. *Clean-Soil Air Water*,45, 1600216
- 23) Wang, J,**Zhang, JB***, Muller, C, Cai, ZC. 2017. Evaluation of the mixing of sands into soils on nitrification potential from different land-use systems. *European Journal of Soil Biology*, 81, 25-30
- 24)**Zhang, J.B.**,Wang, J., Müller, C., Cai, Z. (2016): Ecological and practical significances of crop species preferential N uptake matching with soil N dynamics. *Soil Biology & Biochemistry*, 103, 63-70.
- 25) Wang, J, Wang,L, Feng,X, Hu,H, Cai, ZC,Müller,C,**Zhang,JB***(2016):Soil Ntransformations and its controllingfactors in temperate grasslands inChina: A study from¹⁵N tracingexperiment to literature synthesis.*Journal of Geophysical Research*,121,2949-2959.
- 26) Wang, J., Cheng, Y.,**Zhang, J.B.***, Müller, C., Cai, Z. (2016): Soil gross nitrogen transformations along a secondary succession transect in the north subtropical forest ecosystem of southwest China. *Geoderma*, 280, 88–95.
- 27)**Zhang, J.B.**, Wang, L., Zhao, W., Hu, H., Feng, X., Müller, C., Cai, Z. (2016): Soil gross nitrogen transformations along the Northeast China Transect (NECT) and their response to simulated rainfall events. *Sci. Rep.* 6, 22830; doi: 10.1038/srep22830

- 28) **Zhang, J.B.**, Tian, P., Tang, J., Yuan, L., Ke, Y., Cai, Z., Zhu, B., Müller, C. (2016): The characteristics of soil N transformations regulate the composition of hydrologic N export from terrestrial ecosystem. *Journal of Geophysical Research*, 121, 1409-1419
- 29) Wang, J., Zhu, B., **Zhang, J.B.***, Müller, C., Cai, Z. (2015): Mechanisms of soil N dynamics following long-term application of organic fertilizers to subtropical rain-fed purple soil in China. *Soil Biology and Biochemistry*, 91, 222-231.
- 30) **Zhang, J.B.**, Wang, J., Zhong, W., Cai, Z. (2015): Organic nitrogen stimulates the heterotrophic nitrification rate in an acidic forest soil. *Soil Biology and Biochemistry*, 80, 293-295.
- 31) **Zhang, J.B.**, Lan, T., Müller C., Cai, Z. (2015): Dissimilatory nitrate reduction to ammonium (DNRA) plays an important role in soil nitrogen conservation in neutral and alkaline but not acidic rice soil. *J Soils Sediments*, 15, 523-531.
- 32) **Zhang, J.B.**, Müller C., Cai, Z. (2015): Heterotrophic nitrification of organic N and its contribution to nitrous oxide emissions in soils. *Soil Biology & Biochemistry*, 84, 199-209.
- 33) Wang, J., Liu, Q., **Zhang, J.B.***, Cai, Z. (2015): Conversion of forest to agricultural land affects the relative contribution of bacteria and fungi to nitrification in humid subtropical soils. *Acta Agriculturae Scandinavica, Section B — Soil & Plant Science*, 65, 83-88
- 34) **Zhang, J.B.**, Yu, Y., Zhu, T., Cai, Z. (2014): The mechanisms governing low denitrification capacity and high nitrogen oxide gas emissions in subtropical forest soils in China. *Journal of Geophysical Research*, 119, 1670-1683.
- 35) **Zhang, J.B.**, Sun, W., Zhong, W., Cai Z. (2014): The substrate is an important factor in controlling the significance of heterotrophic nitrification in acidic forest soils. *Soil Biology & Biochemistry*, 76, 143-148
- 36) Zhu, T., **Zhang, J.B.***, Meng, T., Zhang, Y., Yang, J., Müller, C., Cai, Z. (2014): Tea plantation destroys soil retention of NO_3^- and increases N_2O emissions in subtropical China. *Soil Biology & Biochemistry*, 73, 106-114.
- 37) **Zhang, J.B.**, Cai, Z., Zhu, T., Yang, W., Müller, C. (2013): Mechanisms for the retention of inorganic N in acidic forest soils of southern China. *Scientific Reports*, 3, 2342, DOI:10.1038/srep02342.
- 38) **Zhang, J.B.**, Zhu, T., Meng, T., Zhang, Y., Yang, J., Yang, W., Müller, C., Cai, Z. (2013): Agricultural land use affects nitrate production and conservation in humid subtropical soils in China. *Soil Biology and Biochemistry*, 62, 107-114
- 39) Zhang, Y., **Zhang, J.B.***, Meng, T., Zhu, T., Müller, C., Cai, Z. (2013): Heterotrophic nitrification is the predominant NO_3^- production pathway in acid coniferous forest soil in subtropical China. *Biology and Fertility of Soils*, 49, 955-957.
- 40) **Zhang, J.B.**, Zhu, T., Cai, Z., Qin, S., Müller, C. (2012): Effects of long-term repeated mineral and organic fertilizer applications on soil nitrogen transformations. *European Journal of Soil Science*, 63, 75-85.
- 41) **Zhang, J.B.**, Cai, Z., Yang, W., Zhu, T., Yu, Y., Yan, X., Jia, Z. (2012): Long-term field fertilization affects soil nitrogen transformations in a rice-wheat-rotation cropping system. *Journal Plant Nutrition Soil Science*, 175, 939-946
- 42) Cai, Z., **Zhang, J.B.**, Zhu, T., Cheng, Y. (2012): Stimulation of NO and N_2O emissions from soils by SO_2 deposition. *Global Change Biology*, 18, 2280-2291.

43) Sun, P., Zhuge, Y.*,**Zhang, J.B.***, Cai, Z. (2012): Soil pH was the main controlling factor of the denitrification rates and N₂/N₂O emission ratios in forest and grassland soils along the Northeast China Transect (NECT).*Soil Science and Plant Nutrition*, 58, 517-525

44) Lu, L., Han, W.,**Zhang, J.B.**, Wu, Y., Wang, B., Lin, X., Zhu, J., Cai, Z., Jia, Z*. (2012): Nitrification of archaeal ammonia oxidizers in acid soils is supported by hydrolysis of urea. *The ISME Journal*, 6(10), 1978-1984.

45)**Zhang, J.B.**, Cai, Z., Zhu, T. (2011): N₂O production pathways in the subtropical acid forest soils in China.*Environmental Research*, 111, 643-649

46)**Zhang, J.B.**, Zhu, T., Cai, Z., Müller, C. (2011): Heterotrophic nitrification is the predominant NO₃⁻ production mechanism in coniferous but not broad-leaf acid forest soil in subtropical China.*Biology and Fertility of Soils*, 47, 533-542

47)**Zhang, J.B.**, Zhu, T., Cai, Z., Müller, C. (2011): Nitrogen cycling in forest soils across climate gradients in Eastern China.*Plant and Soil*, 342, 419-432

48)**Zhang, J.B.**, Cai, Z., Cheng, Y., Zhu, T. (2010): Immobilization of Nitrate in Anaerobic Forest Soils along a North South Transect in East China.*Soil Science Society of America Journal*, 74, 1193-1200.

49)**Zhang, J.B.**, Cai, Z., Cheng, Y., Zhu, T. (2009): Denitrification and total nitrogen gas production from forest soils of Eastern China.*Soil Biology and Biochemistry*, 41, 2551-2557

承担 (参与) 的主要科研项目

1.国家自然科学基金重点项目, 41830642, 植物对土壤氮转化的反馈作用及其机理研究, 2019-01-2023-12, 282万元, 主持

2.国家自然科学基金面上项目, 41571227, 有机氮异养硝化过程对土壤N₂O排放的贡献, 2016-01-2019-12, 96万元, 主持

3.国家自然科学基金优秀青年基金项目, 41222005, 土壤氮素循环, 2013-01-2015-12, 100万元, 主持

4.国家自然科学基金青年基金, 41101209, 亚热带酸性土壤硝化过程及硝态氮微生物同化研究, 2012-01-2014-12, 26万元, 主持

5.江苏省自然科学基金面上项目, BK2010611, 施肥对农田土壤氮总转化速率的影响, 2011/01-2013/12, 9万元, 主持

6.中国科学院重要方向项目(青年人才类), KZCX2-YW-QN405, 土壤反硝化潜力和产物组成的地域性变异规律, 2010/01-2012/12, 50万, 主持

7.国家自然科学基金重点项目, 40830531, 亚热带土壤氮关键转化过程, 2009-2012, 180万, 参加

8.国家自然科学基金重点项目, 41330744, 土壤氮转化特性对土壤氮去向的作用机理, 2014-01-2018-12, 310万, 参加

9.国家重大科学研究计划项目青年专项, 2015CB954201, 草地土壤碳氮的迁移、转化过程及其机制研究, 2015-01-2019-12, 100万元, 参加

10.国家重大科学研究计划项目, 2014CB953800, 我国活性氮源及其对空气质量与气候变化的影响机理研究, 2014-01-2018-12, 180万元, 参加

授权专利及软件

1.戴沈艳;曹亚澄;杨帆;蔡祖聪;**张金波**;王风贺;一种基于元素分析仪—稳定同位素质谱仪联用装置测定N₂或CO₂气体的氮或碳同位素比值的方法, 2016-10-5, 中国, CN201610531886.1.

2.杨帆;曹亚澄;戴沈艳;蔡祖聪;**张金波**;王风贺;一种基于元素分析仪—稳定同位素质谱仪联用装置测定N₂O或NO气体氮同位素比值的方法, 2016-10-12,中国, CN201610534302.6.

3.杨帆;曹亚澄;戴沈艳;蔡祖聪;**张金波**;王风贺;一种元素分析仪-稳定同位素质谱仪联用装置及其气体同位素比值检测方法, 2016-10-12,中国, CN201610531931.3.

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