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教育经历

2010/09-2014/02：德国柏林自由大学，地质系，博士，导师：Harry Becker

2007/09-2010/07：中国科学院地质与地球物理研究所，固体矿产资源研究室，硕士，导师：刘红涛

2003/09-2007/07：中国地质大学（北京），地球科学学院，学士，导师：李胜荣

工作经历

2016.09起：中国地质大学（武汉），教授

2014/02-2016/09：柏林自由大学，博士后，导师：Harry Becker

2013/09-2014/02：柏林自由大学，研究助理

主要研究方向

依托地质过程与矿产资源国家重点实验室，建立准确分析亲铜元素含量及非传统稳定同位素的方法，利用其元素地球化学和宇宙化学性质，应用到地质样品和陨石来研究：1) 地球及其它行星核幔分异、行星增生演化及增生物质成分；2) 地幔深部岩浆过程；3) 俯冲带物质起源、迁移与循环；4) 金属矿床成因。近期主要聚焦壳幔演化与相互作用及其资源效应，研究俯冲带金属和挥发性元素迁移演化以及胶东巨量金成矿的起源；建立和开发 Ca、Fe、Cu、Zn、Zr 等稳定同位素体系在壳幔演化相关领域的应用；嫦娥五号着陆区火山活动及其月幔源区性质研究。

主要成果

1.建立了准确测定极低含量样品中亲铁亲铜元素含量的等离子质谱-同位素稀释法，为研究太阳系早期演化、行星增生、核幔分异、幔源岩浆过程、壳幔相互作用和金属矿床成因等领域科学问题提供了技术支撑。

2.系统研究了亲铜元素在地幔岩浆过程中的地球化学行为，总结了地幔橄榄岩部分熔融、熔体交代富集、辉石岩脉和大洋地壳形成和演化等不同岩浆过程的内在联系；从 Cu 和 Ag 的地球化学角度揭示岛弧分异过程中地壳深部硫化物堆晶是大陆生长的重要环节。

3.重新估计了 S、Se、Te、Cu、Ag、Cd 和 In 等亲铁亲铜元素在硅酸盐地球中的含量；认为 S、Se、Te 含量和比值与铂族元素一致，均能反映地球地核形成之后增生物质的成分，并提出该物质可能带来了地球上 20-100%水的认识，有效的约束了地球上水的可能起源过程及其时间；提出地球主体增生物质的中度挥发性元素成分可能不能由陨石代表，更新了关于地球增生物质成分的经典模型。

4.新测得火星陨石中 Cu、S、Se 和 Te 含量，根据亲铜元素之间的分异，系统阐明了火星陨石母岩浆具有硫化物不饱和的演化历史，提出了火星内部并不富含硫的突破性认识，挑战了过去三十年广泛认为火星是富含硫的行星的传统观点，并提出火星的水可能在火星核形成前已经存在等认识。

5.针对华北克拉通巨量爆发性金矿来源的难点问题，开发了高精度金分析方法，据此提出交代岩石圈地幔中金的强烈富集并不是成超大型金矿的前提，地幔源区并不异常富集金也能大成矿，其中挥发分起着关键作用的突破性认识。

6. 依托大型仪器 Nu plasma 1700 MC-ICP-MS 开发钙同位素为代表的稳定同位素分析技术，应用于地幔橄榄岩和来自不同扩张速率下的洋壳样品，系统理解了地幔岩浆和洋壳形成过程中的钙同位素分馏。

相关成果以第一作者和通讯作者在 Nature、Geology、EPSL、GCA 等期刊发表论文二十余篇；被 Nature、Nature Geoscience、Science Advances 等顶级期刊引用 500 余次；担任 EPSL

顾问编委 (Advisory Board member, 2019-至今), 受邀为 Nature Geoscience 撰写 News & Views 观点评论。

主要代表性论文

1. Wang, Z., Cheng, H., Zong, K., Geng, X., Liu, Y., Yang, J., Wu, F., Becker, H., Foley, S. and Wang, C.Y. (2020) Metasomatized lithospheric mantle for Mesozoic giant gold deposits in the North China craton. *Geology* 48, 169-173.
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3. Wang, Z. (2019) Earth's volatile-element jigsaw. *Nat. Geosci.* 12, 500-502.
4. Wang, Z., Park, J.-W., Wang, X., Zou, Z., Kim, J., Zhang, P. and Li, M. (2019) Evolution of copper isotopes in arc systems: Insights from lavas and molten sulfur in Niutahi volcano, Tonga rear arc. *Geochim. Cosmochim. Acta* 250, 18-33.
5. Zou, Z., Wang, Z., Li, M., Becker, H., Geng, X., Hu, Z. and Lazarov, M. (2019) Copper Isotope Variations During Magmatic Migration in the Mantle: Insights From Mantle Pyroxenites in Balmuccia Peridotite Massif. *Journal of Geophysical Research: Solid Earth* 124, 11130-11149.
6. Chen, C., Ciazela, J., Li, W., Dai, W., Wang, Z., Foley, S.F., Li, M., Hu, Z. and Liu, Y. (2020a) Calcium isotopic compositions of oceanic crust at various spreading rates. *Geochim. Cosmochim. Acta* 278, 272-288.
7. Chen, C., Dai, W., Wang, Z., Liu, Y., Li, M., Becker, H. and Foley, S.F. (2019b) Calcium isotope fractionation during magmatic processes in the upper mantle. *Geochim. Cosmochim. Acta* 249, 121-137.
8. Cheng, H., Wang, Z., Chen, K., Zong, K., Zou, Z., He, T., Hu, Z., Fischer-Gödde, M. and Liu, Y. (2019) High-precision Determination of Gold Mass Fractions in Geological Reference Materials by Internal Standardisation. *Geostand. Geoanal. Res.* 43, 663-680.
9. Li, M., Lei, Y., Feng, L., Wang, Z., Belshaw, N.S., Hu, Z., Liu, Y., Zhou, L., Chen, H. and Chai, X. (2018) High-precision Ca isotopic measurement using a large geometry high resolution MC-ICP-MS with a dummy bucket. *J. Anal. At. Spectrom.* 33, 1707-1719.
10. Wang, Z. and Becker, H. (2018) Molybdenum partitioning behavior and content in the depleted mantle: Insights from Balmuccia and Baldissero mantle tectonites (Ivrea Zone, Italian Alps). *Chem. Geol.* 499, 138-150.
11. Wang, Z., Becker, H., Liu, Y., Hoffmann, E., Chen, C., Zou, Z. and Li, Y. (2018a) Constant Cu/Ag in upper mantle and oceanic crust: Implications for the role of cumulates during the formation of continental crust. *Earth Planet. Sci. Lett.* 493, 25-35.
12. Wang, Z., Lazarov, M., Steinmann Lena, K., Becker, H., Zou, Z. and Geng, X. (2018b) The distribution of lead and thallium in mantle rocks: Insights from the Balmuccia peridotite massif (Italian Alps). *Am. Mineral.* 103, 1185-1199.
13. Wang, Z., Becker, H., 2017a. Chalcophile elements in Martian meteorites indicate low sulfur content in the Martian interior and a volatile element-depleted late veneer. *Earth Planet. Sci. Lett.* 463, 56-68.
14. Wang, Z., Becker, H., 2017b. Silver contents and Cu/Ag ratios in Martian meteorites and the implications for planetary differentiation. *Geochim. Cosmochim. Acta* 216, 96-114.
15. Wang, Z., Laurenz, V., Petitgirard, S., Becker, H., 2016. Earth's moderately volatile element

composition may not be chondritic: Evidence from In, Cd and Zn. *Earth Planet. Sci. Lett.* 435, 136-146.

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19. Wang, Z., Becker, H., Wombacher, F., 2015d. Mass Fractions of S, Cu, Se, Mo, Ag, Cd, In, Te, Ba, Sm, W, Tl and Bi in Geological Reference Materials and Selected Carbonaceous Chondrites Determined by Isotope Dilution ICP-MS. *Geostand. Geoanal. Res.* 39, 185-208.

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24. 汪在聪, 李胜荣, 刘鑫, 施娘华, 初凤友, 佟景贵, 2007. 中太平洋 WX 海山富钴结壳磷酸盐矿物学研究及成因类型分析. *岩石矿物学杂志* 26, 441-448.

25. 汪在聪, 李胜荣, 申俊峰, 2008. 河南省前河构造蚀变岩型金矿的矽卡岩化及其找矿意义. *矿床地质* 27, 751-761.

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