Jing Liu

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Academic Qualification

2014.9 – 2019.6 Ph. D in Mineralogy, Petrology, and Mineral deposits

Guangzhou Institute of Geochemistry, Chinese Academy of Sciences

2017.11 – 2018.11 Joint Ph. D in Geoscience

Department of Geoscience, Virginia Polytechnic Institute and State University

2010.9 – 2014.6 Bachelor in Environmental Sciences

School of Chemical and Engineering, Xiangtan University

Working Experience

2019. 07- 2021.08 Postdoctoral research fellow in Guangzhou Institute of Geochemistry, CAS

2021.09 – present Macau University of Science and Technology, Macau

Research Interests

I confine my interest in geochemical processes that control the metal cycling and mineralogy in aquatic systems on Earth and the terrestrial planets in modern and ancient systems. Specifically, my work focuses on the water-rock interactions relating to iron and manganese (oxyhydr)oxides nanominerals, which are important geosorbents and natural catalysts that govern the speciation and migration of elements through adsorption, redox, precipitation, and dissolution processes. To accomplish these research works, laboratory-based analytical tools, in situ spectroscopic and electron microscopic methods will be applied.

Professional Affiliations

- Lifetime membership in the Society of Chinese Mineralogy, Petrology and Geochemistry;
- Reviewer of the SCI journals: *Clay and Clay Minerals, Mineralogical Magazine, etc.;*
- Manager of the BrukerVertex70 FTIR and Thermofisher K-alpha XPS; test engineer of the FEI Talos TEM in the Key Laboratory of Mineralogy and Metallogeny, GIG.

Honors and Awards

- The national scholarship for graduate student
- The prize of merit student

Research Grants

1. Open Project of Guangdong Key Laboratory of Mineral Physics and Material Development: 2021-2023, host

2. China Postdoctoral Science Foundation: The growth of manganese (oxyhydr)oxides on various crystal facets of hematite, (2019-2021, 2019M663132), host;

3. National Natural Science Foundation of China: Influence of typical nano-micron particles on surface reactivity and phase transformation of ferrihydrite (2019–2022, 41872044), participant;

4. Newton Advanced Fellowship: Understanding the co-sorption of heavy metal cations and oxyanions at (oxyhydr)oxide-water interfaces (2015–2018, NA150190), participant;

5. National Key Research and Development Program of China: Development of cadmium passivation and agronomic resistance control technology and passivating agent in dryland soil (2016–2020, 2016YFD0800704), participant.

Publications

Journal publications：

1. **Liu, J.**, Inoué, S., Zhu, R.*, He, H., Hochella, F. M.*, Facet-specific oxidation of Mn(II) and heterogeneous growth of manganese (oxyhydr)oxides on hematite nanoparticles. (2021) ***Geochimica et Cosmochimica Acta***, 307, 151-167.
2. **Liu, J.**, Zhu, R.*, Ma, L., Fu, H., Lin, X., Parker, S.C., Molinari, M. Adsorption of phosphate and cadmium on iron (oxyhydr)oxides: A comparative study on ferrihydrite, goethite, and hematite. (2021), ***Geoderma***, 383, 114799.
3. **Liu, J.**, Zhu, R.*, Chen, Q., Zhou, H., Liang, X., Ma, L., Parker, S.C. The significant effect of photo-catalyzed redox reactions on the immobilization of chromium by hematite. (2019), ***Chemical Geology***, 524, 228-236.
4. **Liu, J.**, Zhu, R.*, Xu, T., Laipan, M., Zhu, Y., Zhou, Q., Zhu, J., He, H. Interaction of polyhydroxy fullerenes with ferrihydrite: adsorption and aggregation. (2018), ***Journal of Environmental Sciences***, 64, 1-9.
5. **Liu, J.**, Zhu, R.*, Liang, X., Ma, L., Lin, X., Zhu, J., He, H., Parker, S.C., Molinari, M. Synergistic adsorption of Cd(II) with sulfate/phosphate on ferrihydrite: An in situ ATR-FTIR/2D-COS study. (2018), ***Chemical Geology***, 477, 12-21.
6. **Liu, J.**, Zhu, R.*, Xu, T., Xu, Y., Ge, F., Xi, Y., Zhu, J., He, H. Co-adsorption of phosphate and zinc(II) on the surface of ferrihydrite. (2016), ***Chemosphere***, 144, 1148-1155.
7. Lin, X., Wei, G., Liang, X.*, **Liu, J.**, Ma, L., Zhu, J. The competitive adsorption of chromate and sulfate on Ni-substituted magnetite surfaces: An ATR-FTIR study. (2021), ***Minerals***, 11, 88.

8. Yan, L., Zhu, R.*, **Liu, J.**, Yang, Y., Zhu, J., Sun, H., He, H. Effects of fullerol and graphene oxide on the phase transformation of two-line ferrihydrite. (2020), ***ACS Earth and Space Chemistry***, 4, 335-344.
9. Fu, H., Yang, Y., Zhu, R.*, **Liu, J.**, Usman, M., Chen, Q., He, H. Superior adsorption of phosphate by ferrihydrite-coated and lanthanum-decorated magnetite. (2018), ***Journal of Colloid and Interface Science***, 530, 704-713.
10. Zhu, Y., Laipan, M., Zhu, R.*, Xu, T., **Liu, J.**, Zhu, J., Xi, Y., Zhu, G., He, H. Enhanced photocatalytic activity of Zn/Ti-LDH via hybridizing with C60. (2017), ***Molecular Catalysis***, 427, 54-61.
11. Xu, T., Zhu, R.*, **Liu, J.**, Zhou, Q., Zhu, J., Liang, X., Xi, Y., He, H. Fullerol modification ferrihydrite for the degradation of acid red 18 under simulated sunlight irradiation. (2016), ***Journal of Molecular Catalysis A: Chemical***, 424, 393-401.
12. Chen, Q., Zhu, R.*, Zhu, Y., **Liu, J.**, Zhu, L., Ma, L., Chen, M. Adsorption of polyhydroxy fullerene on polyethylenimine-modified montmorillonite. (2016), ***Applied Clay Science***, 132-133, 412-418.
13. Zhu, R., Zhu, R.*, Ge, F., Xu, Y., **Liu, J.**, Zhu, J., He, H. Effect of heating temperature on the sequestration of Cr^{3+} cations on montmorillonite (2016), ***Applied Clay Science***, 121-122, 111-118.

Conference presentations:

1. **Liu, J.**, Zhu, R., 2020. Facet-dependent growth of manganese (oxyhydr)oxides on hematite. Goldschmidt, Online meeting.
2. **Liu, J.**, Zhu, R., 2019. The significant effect of photo-catalyzed redox reactions on the immobilization of chromium by hematite. 10^{th} National Conference on Environmental Chemistry, Tianjin, China.
3. **Liu, J.**, Zhu, R., He H., 2018. Adsorption of phosphate and Cd(II) on ferrihydrite, goethite, and hematite. The 55^{th} Annual Meeting of the Clay Minerals Society, Urbana-Champaign, USA.
4. **Liu, J.**, Zhu, R., 2017. Interaction of polyhydroxy fullerenes with ferrihydrite: adsorption, aggregation, and degradation. 13^{th} International Conference on Applied Mineralogy, Taranto, Italy.
5. Yan L., Zhu, R., **Liu, J.**, Chen Q., Zhu J., 2017. The transformation of ferrihydrite in the presence of graphene oxide. The 16th Annual Meeting of the Chinese Society of Mineralogy, Petrology and Geochemistry, Hangzhou, China.
6. **Liu, J.**, Zhu, R., 2016. The synergistic adsorption of Cd(II) with phosphate and sulfate on ferrihydrite. The National Conference on Mineral Science and Engineering, Beijing, China.