

Jiaqi Jin, Ph.D.

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Education

University of Utah, Salt Lake City, UT (*Aug 2011 – May 2016*)

Ph.D. in **Metallurgical Engineering**

University of Science and Technology Beijing, Beijing, China (*Aug 2008 – Jun 2011*)

B.S. in **Computer Science**

University of Science and Technology Beijing, Beijing, China (*Aug 2007 – Jun 2011*)

B.S. in **Metallurgical Engineering**

Academic Experience

Jul 2022 – present

Assistant Professor of Metallurgical Engineering, Materials Science and Engineering,
University of Utah, Salt Lake City, UT

- Research:
 - Co-Principal Investigator for a DOE sponsored Energy Frontier Research Center (EFRC) at the University of Utah “Multi-Scale Fluid-Solid Interactions in Architected and Natural Materials” (MUSE II) (*Jul 2022 – Jun 2024*)
- Instructor:
 - MSE 1800 Contemporary Materials Science and Engineering I (Spring 2023)
 - MET E 5760/MSE 5098 Senior Design (Spring 2023)

Jul 2021 – Jun 2022

Research Assistant Professor, Materials Science and Engineering, **University of Utah**, Salt Lake City, UT

- Research:
 - Principal Investigator for an industry sponsored project on “Classification of Carbonaceous Materials in Selected Nevada Ores” (*Nov 2021 – Dec 2023*)
 - Principal Investigator for an industry sponsored project on “3D Characterization of Packed Particle Beds using XCT” (*Jan 2022 – Dec 2023*)
- Instructor:
 - MET E 567/5670/6670 Mineral Processing I (Spring 2022)
 - MSE 5099 Senior Thesis (Spring 2022)
 - MSE 5098 Senior Design (Fall 2021)

Jul 2018 – Jun 2021

Adjunct Assistant Professor, Materials Science and Engineering, **University of Utah**, Salt Lake City, UT

- Research:
 - Key Person for an industry sponsored project, “Surface Chemistry of Carbonaceous Materials for Sulfide Flotation” (*July 2020-June 2022*)
 - Key Person for an industry sponsored project on “XCT Analysis of Coarse Copper Ore Particles for Pre-Concentration by Ore Sorting” (*Sep 2020 – Feb 2021*)
 - Key Person for a DOE sponsored Energy Frontier Research Center (EFRC) at the

University of Utah “Multi-Scale Fluid-Solid Interactions in Architected and Natural Materials” (MUSE) (*Mar 2019 – Jun 2022*)

- Instructor:
 - MET E 567/5670/6670 Mineral Processing I (Spring 2021 and 2020)
 - MET E 5680/6680 Mineral Processing II (Fall 2020)
 - MET E 5800/7910 Mineral Surface Chemistry of Aqueous Systems (Fall 2019)

Aug 2011 – Apr 2016

Research Assistantship, Metallurgical Engineering, **University of Utah**, Salt Lake City, UT

- Research:
 - Graduate student for a DOE sponsored project on “Natural Hydrophobic Surfaces”
- Instructor:
 - MET E 7910 MD Modeling of Mineral-Water Interfaces (Spring 2015 and 2014)

May 2013 – Jul 2013 and May 2012 - Jul 2012

Graduate Intern, **Pacific Northwest National Laboratory**, Richland, WA

- Research topics included molecular interaction at the mineral-water interface studied by ab-initio simulation and MD simulation

Sep 2010 – Jun 2011

Undergrad Intern, Metallurgical Engineering, **University of Science and Technology Beijing**

- Developed software to optimize iron ore blending at Nanchang Iron and Steel Co. Ltd

Industrial Experience

Aug 2017 – Mar 2019

Metallurgist II, Mill Technical Services, **Freeport-McMoRan Copper & Gold**, Bagdad, AZ

- Programmed and commissioned the Advanced Process Control (APC) for Bagdad mill
- Technical support for Cu-Mo flotation and concentrate dewatering
- Metallurgical accounting for production reporting and metal reconciliation
- Mill water management (balance and treatment)

May 2016 - Aug 2017

Metallurgist I, Metallurgical Services, **Barrick Gold**, Elko, NV

- Ore characterization with SEM, XRD, and FTIR
- Technical support for roaster-cyanide leach and autoclave-thiosulfate leach
- Flotation tests to recover gold associated with carbonaceous materials
- Metal planning/forecasting

May 2014 - Aug 2014

Graduate Intern, **Cripple Creek & Victor Gold Mining Company**, Victor, CO

- Flotation and leaching tests to validate mill design and predict gold recovery

Jul 2010 - Aug 2010

Undergrad Intern, **Wanfang Aluminum Co. Ltd.**, Jiaozuo, Henan Province, China

- Operation of aluminum electrolysis plant

Jul 2009 - Aug 2009

Undergrad Intern, **Shougang Qian'an Iron and Steel Co. Ltd.**, Qian'an, Hebei Province, China

- Operation of blast furnace, steel refinery, and casting plant

Publications

1. Jin J., Asai P., Wang X., Miller J.D., and Deo M.D., Effect of CO₂ nanobubble on slip flow of water at hydrophobic silica surfaces of nanometer slit pores. *Colloids and Surfaces A*. 2023 (in prep for submission).
2. Jin J., Peterson E.U., and Miller J.D., Geo-metallurgical characterization of Carlin Trend gold ore for pre-concentration. *Minerals Engineering*. 2023 (in prep for submission).
3. Zhang, C., Wang, X., Li, L., Jin, J., Polson, R., Miller, J., Multiscale water drop contact angles at selected silica surfaces. *Physicochemical Problems of Mineral Processing*. 2022, 58.
4. Sime, F., Jin, J., Wang, X., Wick, C.D., and Miller, J.D., Characterization of HOPG surfaces for the analysis of carbonaceous matter separation from sulfide ores by flotation. *Minerals Engineering*. 182, 2022, 107590.
5. Asai P., Jin J., Deo M.D., Miller J.D., and Butt D.P., NEMD simulations to evaluate the effect of confinement on fluid flow in silica nanopores. *Fuels*. 317, 2022, 123373.
6. Jin J., Assemi S., Asgar H., Gadikota G., Tran T., Nguyen W., McLennan J., and Miller J.D., Characterization of natural consolidated halloysite nanotube structures. *Minerals*. 11(12), 2021, 1308.
7. Jin J., Lin C.L., Miller J.D., Zhao C., and Li T., X-ray computed tomography evaluation of crushed copper sulfide ore for pre-concentration by ore sorting. *Mining, Metallurgy & Exploration*. 2021, 1-9.
8. Jin J., Lin C.L., Assemi S., Miller J.D., Butt D.P., Jordan T., Deo M.D., and Semaykina V., Nanopore networks in colloidal silica assemblies characterized by XCT for confined fluid flow modeling. *Journal of Petroleum Science and Engineering*. 2021, 109780.
9. Jin J., Asai P., Wang X., Miller J.D., and Deo M.D., Simulation and analysis of slip flow of water at hydrophobic silica surfaces of nanometer slit pores. *Colloids and Surfaces A*. 2021, 127032.
10. Zhang C., Wang X., Jin J., Li L., and Miller J.D., AFM slip length measurements for water at selected phyllosilicate surfaces. *Colloids and Interfaces*. 5(4), 2021, 44.
11. Asgar, H., Jin, J., Miller, J.D., Kuzmenko, I., and Gadikota, G., Contrasting thermally-induced structural and microstructural evolution of alumino-silicates with tubular and planar arrangements: Case study of halloysite and kaolinite, *Colloids and Surfaces A*. 613, 2021, 126106.
12. Jin, J., Wang, X., Wick, C.D., Dang, L.X., Miller, J.D., Silica surface states and their wetting characteristics, *Surface Innovations*. 8(3), 2020, 145-157.
13. Atluri, B.V., Jin, J., Shrimali, K., Dang, L.X., Wang, X., Miller, J.D., The hydrophobic surface state of talc as influenced by aluminum substitution in the tetrahedral layer, *Journal of Colloid and Interface Science*. 536, 2019, 737-748.
14. Hassas B.V., Jin, J., Dang, L.X., Wang X., Miller J.D., Attachment, coalescence, and spreading of carbon dioxide nanobubbles at pyrite surfaces, *Langmuir*. 34, 2018,

14317-14327.

15. Jin, J., Dang, L.X., Miller, J.D., Molecular dynamics simulations study of nano bubble attachment at hydrophobic surfaces, *Physicochemical Problems of Mineral Processing*. 54(1), 2018, 89-101.
16. Jin, J., Miller, J.D., MDS analysis of film stability and bubble attachment at selected mineral surfaces, *Proceedings, International Mineral Processing Conference (IMPC)*. 2016, Quebec, Canada.
17. Shrimali, K., Jin, J., Wang, X., Miller, J.D., The surface state of hematite and its wetting characteristics, *Journal of Colloid and Interface Science*. 477, 2016, 16-24.
18. Jin, J., 2016. Wetting and interfacial water analysis of selected mineral surfaces as determined by MDS and SFVS. Ph.D. Dissertation, University of Utah, Salt Lake City, UT.
19. Miller, J.D., Wang, X., Jin, J., Shrimali, K., Interfacial water structure and the wetting of mineral surfaces, *International Journal of Mineral Processing*. 159, 2016, 62-68.
20. Jin, J., Miller, J.D., Dang, L.X., Wick, C., Effect of Cu^{2+} activation on interfacial water structure at sphalerite surface as studied by molecular dynamics simulation, *International Journal of Mineral Processing*. 145, 2015, 66-76.
21. Jin, J., Miller, J.D., Dang, L.X., Wick, C., Effect of surface oxidation on interfacial water structure at a pyrite (100) surface as studied by molecular dynamics simulation, *International Journal of Mineral Processing*. 139, 2015, 64-76.
22. Jin, J., Miller, J.D., Dang, L.X., Molecular dynamics simulation and analysis of interfacial water at selected sulfide mineral surfaces under anaerobic conditions, *International Journal of Mineral Processing*. 128, 2014, 55-67.

Selected Presentations for Mineral Processing

1. XCT for Mineral Processing Technology, **Spring 2023 Graduate Seminar at the Department of Materials Science & Engineering, University of Utah**, Salt Lake City, UT
2. Geo-metallurgical characterization of Carlin Trend gold ore, **2022 SME Annual Meeting**, Salt Lake City, UT
3. Introduction of Mineral Processing Industry in Western U.S., **Fall 2021 Graduate Seminar at the Department of Chemical Engineering, University of Utah**, Salt Lake City, UT
4. Silica surface states and wetting characteristics, **2020 SME Annual Meeting**, Phoenix, AZ
5. Hydrophobic surface state of talc as influenced by aluminum substitution in the tetrahedral layer, **2019 SME Annual Meeting**, Denver, CO
6. MDS analysis of nitrogen bubble and oil drop attachment at molybdenite face surface, **2018 SME Annual Meeting**, Minneapolis, MN
7. Wetting characteristics of mineral surfaces as revealed by MD simulations, **2016 SME Annual Meeting**, Phoenix, AZ
8. Surface chemistry features of Cripple Creek gold minerals as described by MDS, **2015 SME Colorado Mineral Processing Division (MPD) Conference**, Colorado Springs, CO

9. Effect of surface oxidation on interfacial water structure at the pyrite (100) surface as studied by MDS, **2014 38th International Precious Metal Conference**, Orlando, FL

Honors and Awards

- Student Presentation Award (runner-up), **2015 SME Colorado MPD Conference**, Colorado Springs, CO
- International Precious Metal Institutes (IPMI) Elemental Graduate Student Award, **2014 38th International Precious Metal Conference**, Orlando, FL
- 3rd Prize in Education Sustainability Task Force Graduate Student Poster Contest, **2013 SME Annual Conference**, Denver, CO
- Excellent Volunteer, **the Games of the XXIX Olympiad, 2008**, Beijing, China