Curriculum Vitae

Name: LIU, Jing

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Professional Engineering Status: P.Eng. in Alberta since 2020

Education

Ph.D. Materials Engineering, 2015
University Name: The University of British Columbia (UBC)
Thesis Title: High temperature and high pressure corrosion of titanium in hydrometallurgical applications; Advisor Name: Prof. Edouard Asselin and Prof. Akram Alfantazi

B.Sc. Oil & Gas Storage Engineering, 2008
University Name: China University of Petroleum (East China)
Two years' study in Computational Mathematics, 09/2004 to 07/2006

Appointments

Associate Professor, September 2019 – present (Tenured since November 2023)
Department of Chemical and Materials Engineering, University of Alberta
Some highlights:

- Teaching: MAT E 202 (Materials Science II), MAT E 345 (Corrosion, Oxidation, and Degradation), MAT E 645 (Electrochemical Processes), and CH E 485/694 (Fuel Cells and Their Applications).
- Research: At present, I am the recipient of 16 research grants, 8 as PI ($2M) and 8 as co-PI ($8.0M). In addition, I completed 12 research projects, 10 as PI ($650K) and 2 as co-PI ($110K). The grant funds allowed me to train 5 NSERC USRAs, 11 M.Sc., 9 Ph.D., and 2 PDFs.
- Service: organizing committee for multiple conferences (CMSC and NACE), Associate Editor for the Canadian Metallurgical Quarterly; department safety committee.

Principal Metallurgist, August 2018 – July 2019
Metallurgy Department, Kemetco Research Inc.

- Developing and marketing ORP sensor for Gold and Copper mining sites. Sponsors: Barrick Gold Corporation, and Aurubis AG
- Lithium Recovery Testing and Boric Acid Purification. Sponsor: Noram Lithium Corp.

Postdoctoral Fellow, May 2015 – July 2018
Materials Engineering, UBC; Advisor Name: Prof. Edouard Asselin
As a PDF, I worked on 4 NSERC funded projects and 1 industrial project, all as the main contributor (the PI was my advisor at UBC, Prof. Asselin):

- Measuring Potential in a Pressure Oxidation Autoclave. Sponsor: Barrick Gold Corporation
- New Materials for Improved Biomass Gasification Boiler Super-Heaters. Sponsor: Nexterra Systems Corp
- Development of a probe for in-situ gasifier corrosion testing. Sponsor: Nexterra Systems Corp
- Underground Corrosion Risk Assessment for Galvanized Steel Power Transmission Towers. Sponsor: NSERC CRD with BC Hydro

Academic Awards

Petro-Canada Young Investigator Award, 2022
About the award: The Petro-Canada Emerging Innovator Awards recognize, promote, and support outstanding and innovative faculty researchers at the University of Alberta whose academic work benefits the learning environment of their department and whose research has potential to be of significance to society at large.
Title: Corrosion risk analysis of the next generation in situ extraction with captured CO_2.

MetSoc Brimacombe Award, 2024
About the award: The Brimacombe award is to recognize early-career MetSoc member achievers who have made noteworthy contributions in the metallurgical and materials community. The contributions and impact must be to the benefit of Canada.

UAERC in Materials Innovation for Sustainable Energy Transformation, 2024-2029
About the title: The Faculty of Engineering at the U of A has initiated the **University of Alberta Engineering Research Chairs (UAERCs)** Program. This effort aims to promote the establishment of new collaborative partnerships and sustain existing ones, thus continuing the legacy of the NSERC Industrial Research Chair (IRC) Program. The IRC Program ceased accepting new applications or renewals in September 2019. The UAERC Program operates as a competitive initiative with the goal of awarding UAERCs to a maximum of 20% of the Faculty of Engineering's professoriate.

Service
Conferences/Symposia Organized
- Chair, Organizing Committee, CMSC 2024, The 35th Canadian Materials Science Conference, Edmonton, Alberta, Canada, May 22-25, 2024.
- Poster Session Chair, Organizing Committee, AMPP Edmonton Conference 2024, Edmonton, Alberta, Canada, April 8-10, 2024.
- Secretary, Organizing Committee, CMSC 2023, The 34th Canadian Materials Science Conference, Winnipeg, Manitoba, Canada, June 27-30, 2023.
- Poster Session Chair, Organizing Committee, NACE Northern Area Western Conference 2022, Edmonton, Alberta, Canada, April 11-14, 2022.
- Symposium Chair and Short Course Organizer, Corrosion in Energy Sectors, The 60th Conference of Metallurgists, COM 2021, virtual event, August 17-19, 2021.
- Organizing committee, Global Young Investigator Forum in ECD ACerS ICACC 21, virtual event, February 8-11, 2021.

Journal Editorship
- Associate Editor, Canadian Metallurgical Quarterly, 2022-present.
- Subject Editor, Process Safety and Environmental Protection, 2024-present.

Selective Publications
(HQP's names are underlined)
- Li, Meifeng, Haofei Sun, Xuehai Tan, Hao Zhang, and **Jing Liu**. "A novel entropy-stabilized oxide coating thermally grown from a valve metal-based complex concentrated alloy." ***Materials Today*** 74 (2024): 46-57.
- Li, Meifeng, Hao Zhang, Hani Henein, and **Jing Liu**. "Hydrogen trapping in precipitates of high-strength steel: Insights into various coherent and stress conditions." ***International Journal of Hydrogen Energy*** 92 (2024): 1356-1365.
- Wang, Haoxiang, and **Jing Liu**. "Corrosion-induced changes in bio-oil aging: A gas chromatography exploration." ***Renewable Energy*** 234 (2024): 121193.
- Sun, Ziting, Haoxiang Wang, Yimin Zeng, **Jing Liu**, and Nobuo Maeda. "Understanding and enhancing the phase stability of fast pyrolysis oils through ternary phase diagrams." ***Chemical Engineering Journal*** (2024): 156820.

- Liaqat, Shehzad, Ziting Sun, Yimin Zeng, Nobuo Maeda, and **Jing Liu**. "Technical challenges and corrosion research progress in bio-crude co-processing." ***Chemical Engineering Journal*** (2024): 155981.
- Li, Meifeng, Alexander Gross, Ben Taylor, Hao Zhang, and **Jing Liu**. "Effects of Cl-ion and temperature variations on steel corrosion in supercritical CO2 saturated aqueous environments." ***Process Safety and Environmental Protection*** 187 (2024): 1446-1453.
- Li, Meifeng, Hani Henein, Chungen Zhou, and **Jing Liu**. "Towards high-entropy alloys with high-temperature corrosion resistance and structural stability." ***Journal of Materials Science & Technology*** 174 (2024): 133-144.
- Li, Meifeng, Hao Zhang, Yimin Zeng, and **Jing Liu**. "A perspective on investigating transition metal high-entropy alloys for high-temperature applications." ***Acta Materialia*** 240 (2022): 118313.
- Sun, Haofei, Meifeng Li, Hao Zhang, and **Jing Liu**. "Phase transformation and diffusion in high-temperature oxidation of FeCrNi medium entropy alloy." ***Corrosion Science*** 227 (2024): 111685.
- Sun, Haofei, and **Jing Liu**. "Hot corrosion of Fe-Cr-Ni multi-principal element alloys in Na2SO4+ 25% NaCl mixture salts at 700–900° C." ***Intermetallics*** 166 (2024): 108203.
- Li, Meifeng, Hao Zhang, Yimin Zeng, and **Jing Liu**. "Adsorption and dissociation of high-pressure hydrogen on Fe (100) and Fe2O3 (001) surfaces: Combining DFT calculation and statistical thermodynamics." ***Acta Materialia*** 239 (2022): 118267.
- Wang, Haoxiang, Alexander Gross, and **Jing Liu**. "Influence of methanol addition on bio-oil thermal stability and corrosivity." ***Chemical Engineering Journal*** 433 (2022): 133692.
- Sun, Haofei, Haoxiang Wang, Yimin Zeng, and **Jing Liu**. "Corrosion challenges in supercritical CO2 transportation, storage, and utilization—a review." ***Renewable and Sustainable Energy Reviews*** 179 (2023): 113292.
- Sun, Haofei, Luchao Sun, Xiaomin Ren, Cui Zhou, Jie Li, Tiefeng Du, **Jing Liu**, and Jingyang Wang. "Outstanding molten calcium–magnesium–aluminosilicate (CMAS) corrosion resistance of directionally solidified Al2O3/Y3Al5O12 eutectic ceramic at 1500° C." ***Corrosion Science*** 220 (2023): 111289.

Patents

E. Asselin, H. Zebardast, **J. Liu**. "Apparatus, systems and methods for in situ measurement of an oxidation/reduction potential and pH of a solution." U.S. Patent 11,467,124, issued October 11, 2022.

Selective Keynote and Invited Lectures:

- **J. Liu**, “Technology Pathways for Co-Processing Pyrolysis Oils and Fossil Fuels.” **Invited Talk** for the Energy Division Symposium at CSChE2023, Calgary, Canada.
- **J. Liu**, “Comprehensive Investigation of Oxide Evolution on FeCrNiCoCu High Entropy Alloy.” **Keynote Talk** for COM 2022, 61st Annual Conference of Metallurgists, Montréal, QC, Canada.
- **J. Liu**, “Influence of Methanol Addition on Bio-oil Thermal Stability and Corrosivity.” **Invited Talk** for the 26th Canadian Symposium on Catalysis (CSC 2022), Vancouver, Canada.
- **J. Liu**, “Measuring Potential in a Pressure Oxidation Autoclave: The development of a robust in-situ oxidation/reduction potential sensor.” **Invited Talk** for McMaster Automotive Resource Centre (MARC), 2020, Hamilton, ON, Canada.
- **J. Liu**, A. Alfantazi, E. Asselin, "The pitting corrosion of titanium in aggressive environments." **Invited lecture** for Conference of NACE 2016, Vancouver, BC Canada.
- **J. Liu**, E. Asselin, "Evaluation and Improvement of the Corrosion Resistance of Ti for the Chemical Process Industry." **Invited Talk** for Conference of NACE 2016, Vancouver, BC Canada.
- **J. Liu**, A. Alfantazi, E. Asselin, "Combined influence of metal and chloride ions on the corrosion of titanium at elevated temperatures", **Keynote lecture** for Conference of Materials Science & Technology 2015, Columbus, Ohio USA