UEC Nomination Form

Please complete and return to CLS by December 6, 2021

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1. Full Name:
   Songlin Wu

2. Position (Title) or Institution and/or PI (if graduate student):
   Research Fellow, Centre for Mine Land Rehabilitation, Sustainable Minerals Institute, The University of Queensland.

3. Years of Synchrotron Experience at various synchrotron facilities:
   I have more than 10 years of experience using a synchrotron beamline at the Australia synchrotron (XFM, XAS and soft X ray beamline), National synchrotron radiation research center (NSRRC) in Taiwan (XAFS beamline and soft-X ray beamline), Canadian light science (CLS) in Canada (SM beamline), as well as Beijing Synchrotron Radiation Facility (BSRF) and the Shanghai Synchrotron Radiation Facility (SSRF) in China.

4. History of CLS Service (Advisory Committees, Beam teams, teacher/mentor at workshops, etc)
   N/A

5. The CLS has four main scientific areas designated as strategic areas of research. Please indicate which area best aligns with your own research area [Agriculture, Advanced Materials, Health, or the Environment]
   The Environment

6. Brief description of why research at the CLS is critical to your research program (100 words)
   My research focuses on metal(loid) biogeochemistry and organo-mineral interaction. Synchrotron based micro-spectroscopic analyses including STXM-NEXAFS, XAS, XFM-XANES are critical for identifying organic, mineral and/or metal(loid) phases in complex environmental samples, which cannot be achieved by traditional methodologies. By using these synchrotron-based technologies I have substantially unravelled metal(loid) behavior and Fe bearing mineral weathering and their association with organic carbon in the tailings. Recently, we have used STXM-NEXAFS in CLS to resolve the interactions between OC and Fe/Si/Al rich minerals in the tailings at nanoscale as they occur, providing critical information for understanding organo-mineral association and soil formation in the tailings.

7. Please list a maximum of 3 publications which best represent your synchrotron work at the CLS

Yi, Q., **Wu, S***., Southam, G., Robertson, L., You, F., Liu, Y., ... & Huang, L*. (2021). Acidophilic Iron- and Sulfur-Oxidizing Bacteria, Acidithiobacillus ferrooxidans, Drives Alkaline pH Neutralization and Mineral Weathering in Fe Ore Tailings. ***Environmental Science & Technology***. 2021, 55, 12, 8020–8034

Wu, S.*, You, F., Boughton, B., Liu, Y., Nguyen, T.A., Wykes, J., Southam, G., Robertson, L.M., Chan, T.S., Lu, Y.R. and Lutz, A., Yu, D., Yi Q., Saha, N., Huang, L.* 2021. Chemodiversity of dissolved organic matter and its molecular changes driven by rhizosphere activities in Fe Ore tailings undergoing Eco-Engineered pedogenesis. ***Environmental Science & Technology***. 55, 19, 13045–13060

Wu S, Liu, Y., Bougoure, J. J., Southam, G., Chan, T. S., Lu, Y. R., ... & Huang, L. 2019. Organic Matter Amendment and Plant Colonization Drive Mineral Weathering, Organic Carbon Sequestration, and Water-Stable Aggregation in Magnetite Fe Ore Tailings. ***Environmental Science & Technology***, 53(23), 13720-13731

The CLS reserves the right to limit the number of elected UEC members from non-Canadian institutions to two or fewer. In the event that more than two members from non-Canadian institutions are elected, the lowest vote getter will be replaced by the highest vote getter non-elected nominee from a Canadian institution.