## October-December 2020 Happenings

### Events

PDF **Christopher Nzediegwu** presented the paper Interactive Effect of Feedstock Type and Production Temperature on Hydrochar Adsorption Capacity for Lead in Aqueous Solutions at the 20th International Conference on Heavy Metals in the Environment (ICHMET 2020), Seoul, Korea (virtual), October 25-27 2020. This paper was co authored by Drs Scott Chang and M Anne Naeth.

PhD student **Stephanie Ibsen** was invited to be a feature researcher as part of the Telus World of Science's International Day of 2SLGBTQ+ People in STEM. She presented her FES research and participated in a panel discussion on diversity in STEM. The event can be viewed at www.facebook.com/watch/?v=212133693962797.

PDFs **Muhammad Arslan** and **Christopher Nzediegwu** and PhD Students **Jerico Fiestas-Flores** and **Yihan Zhao** participated in the 2020 Future Energy Systems Digital Research Showcase, November 23 2020. Ninety-nine FES HQP shared posters on Twitter with hastag #FESResearchShowcase. The four posters from our theme were:

Arslan, M and M Gamal El-Din. Microbial Composition and Functional Diversity in Biofilters Treating Oil Sands Processed Water: Bacterial Augmentation Enhances Degradation.

Fiestas-Flores, J, G Hauer, V Adamowicz, M Gamal El-Din and P Chelme-Ayala. A Framework to Estimate the Treatment Cost of the Oil Sands Process Water (OSPW) in Alberta.

Nzediegwu, C, MA Naeth and SX Chang. Biomass Conversion Method Controls Chemical, Fuel and Surface Properties of Chars.

Zhao, Y and MA Naeth. Nano Humus as a Soil Conditioning Amendment in Coal Mine Reclamation.

**Dr Mohamed Gamal El-Din** presented on Integrated Water Purification System for Safe Water Reclamation and Resource Recovery at the Tsinghua-UAlberta Joint Research Center for Future Energy and Environment Agreement Renewal Ceremony and Joint Workshop. Tsinghua University (virtual), November 25 2020. This research is co authored by Dr Peng Liang from Tsinghua University.

PDF **Christopher Nzediegwu** participated in the Nature Forum on Plastics and Sustainability December 1 2020. This was a virtual event organized by Korea University in conjunction with Nature Research.

**Dr Scott Chang** was invited to present his research at the 2nd Engineering Sustainable Development conference (virtual), December 15-17 2020. The goal of the conference was to bring together engineers, scientists and policy makers to discuss the challenges of addressing the 2030 Agenda for Sustainable Development. His talk, co-authored with visiting student Xiaona Li and Drs Y Song and X Jiang from the University of the Chinese Academy of Sciences, was titled Coexistence of Polyethylene Microplastics and Biochar Increases Ammonium Sorption in an Aqueous Solution.

The highlight of this quarter was our 4th annual theme workshop. This year was a bit different due to COVID and the venue was virtual. Everyone however was still able to attend, provide engaging

presentations on their research over the past year, and actively participate in the question and discussion sessions. Thank you for making this event a success.

## Achievements

Four papers were accepted for publication.

**Zahara, I**, **M Arshad**, **T Siddique** and **A Ullah**. 2020. Feather keratin derived sorbents for the treatment of wastewater produced during energy generation processes. Chemosphere DOI: doi.org/10.1016/j.chemosphere.2020.128545

**Huang, R**, L Yang, ZT **How**, Z Fang, A Bekele, DJ Letinski, AD Redman and **M Gamal El-Din**. 2021. Characterization of raw and ozonated oil sand process water utilizing atmospheric pressure gas chromatography time-of-flight mass spectrometry combined with solid phase microextraction. Chemosphere DOI: doi.org/10.1016/j.chemosphere.2020.129017

**Nzediegwu, C**, **MA Naeth** and **SX Chang**. 2021. Lead(II) adsorption on microwave-pyrolyzed biochars and hydrochars depends on feedstock type and production temperature. Journal of Hazardous Material DOI: doi.org/10.1016/j.jhazmat.2020.124260

**Nzediegwu, C**, **M Arshad**, **A Ullah**, **MA Naeth** and **SX Chang**. 2021. Fuel, thermal and surface properties of microwave-pyrolyzed biochars depend on feedstock type and pyrolysis temperature. Bioresource Technology DOI: doi.org/10.1016/j.biortech.2020.124282

In October 2020, Dr **Mohamed Gamal El-Din**'s research on biofiltration for oil sands process water was featured in the Canadian Institute of Mining, Metallurgy and Petroleum's magazine CIM. https://magazine.cim.org/en/environment/ actively-looking-for-a-passive-approach-en/?utm_source=LI&utm_medium=LI&utm_campaign=LI

## Notices And Reminders

FES annual reporting period is soon approaching. As in past years our theme Coordinators will be doing all reporting for the theme. More details on what information they need from each researcher will be sent out shortly. If you receive emails from the FES main office regarding reporting please disregard.

Virtual conference expenses such as registration fees are considered a travel expense; however, the full FES Travel Form is not required. Supporting documentation should include conference name, dates and location, hosting organization(s), relevance to your FES research and indicate if presenting. For HQP, an email indicating approval to attend from your supervisor is required.

As many may be focusing on research manuscripts at this time, a reminder FES has standard acknowledgement requirements for papers and presentations. Contact our theme Coordinators for details.