



# ses

school of environmental sciences

The Research Seminar Presentation by

**Serge Lévesque**

will be held on

**Tuesday March 6<sup>th</sup>, 2018**

**At 1:30 pm**

**ALEXANDER HALL 265**

**Title: Efficacy of electrochemical systems for treating greenhouse irrigation water for reuse**

#### Abstract

In order to reduce water consumption, improve diminishing quality of natural resources for irrigation water, and maintain/improve crop yields in greenhouses, water must be treated before application. Water recirculation is an ideal way to reduce water consumption, however issues arise such as pathogen control and chemical contaminants, which accumulate over time. Pathogens are carried through the water and become inoculated to healthy plants as well as chemical contaminants which can accumulate to phytotoxic levels. Electrochemical advanced oxidation processes (EAOP) and Dimensionally Stable Anodes (DSA) are techniques that have been overlooked and provide many benefits to replace conventional treatment systems. Electrochemical systems use the transfer of electrons to form disinfectant products to kill pathogens and degrade harmful chemicals. The EAOP produces hydroxyl radicals that are highly reactive and the benefits include minimal moving parts, no secondary chemicals or hardware additions, reduced energy costs, and ease of use. The DSA system is another alternative method that produces free chlorine instead of hydroxyl radicals in order to kill pathogens. The EAOP, DSA and other water treatment systems will be compared for various aspects by evaluating pathogens such as *Fusarium oxysporum*, *Rhizoctonia solani*, herbicides (glyphosate), and growth regulators (paclobutrazol).

Everyone is welcome to attend