DEPARTMENT OF BIOLOGICAL SCIENCES
SEMINAR SERIES

Dr. Daniel Wozniak
The Ohio State University

"Biofilms and Immunity in chronic infections."

Monday, December 11, 2017
12:00 pm
CBIS, Bruggeman Room

REFRESHMENTS SERVED AT 11:45
“Aeromechanics of a rigid, coaxial, counter-rotating rotor in hover and forward flight”

Dr. Jayant Sirohi
University of Texas at Austin

Wednesday, December 13, 2017
10:30 AM – 11:30 AM
DCC 330

Abstract: The rigid coaxial, counter-rotating rotor system is being explored for the next generation of rotorcraft. This configuration allows for a higher cruise speed than a conventional single rotor. However, the proximity of the two rotors results in aerodynamic interactions that affect the performance as well as the vibratory loads. Recently, we completed a series of experiments on a reduced-scale model of this rotor system in hover and forward flight. A number of interesting phenomena were revealed and this study has resulted in a comprehensive benchmark data base.

Bio: Dr. Sirohi got his BTech in Aerospace Engineering from IIT Madras and his MS and PhD from the University of Maryland at College Park. Before joining the Cockrell School of Engineering in Fall 2008, Dr. Sirohi worked at Sikorsky Aircraft Corporation where he was a Staff Engineer in the Advanced Concepts group. There he was involved with the conceptual design of next generation vertical take-off aircraft, as well as the performance enhancement of existing rotorcraft using advanced technologies. At UT Austin, Dr. Sirohi works on projects related to smart material sensors, experimental aerodynamics and structural dynamics, energy harvesting and rotary-wing aeroelasticity.
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING

SEMINAR

“Detection of perfluoroalkyl and polyfluoroalkyl substances (PFAS) following firefighting foam deployment during the Lac-Mégantic railway accident”

Wednesday, December 13, 2017

JEC 3117

1:00 – 2:00

Dr. Jinxia Liu, Associate Professor
McGill University

ABSTRACT:

In the aftermath of the 2013 Lac-Mégantic derailment accident, the emergency response entailed the deployment of aqueous film forming foams (AFFFs) that contained proprietary fluorosurfactants. The present study examines the environmental occurrence of over 100 legacy and newly-identified polyfluoroalkyl and perfluoroalkyl substances (PFASs) in the benthic fish white sucker (Catostomus commersonii), sediments from Lake Mégantic and Chaudière River, and soils from the site of accident and biopiles. Overall, the levels of PFAS in sediments and fish remained low, only slightly higher than those before the accident. Soil samples showed a much greater number of PFAS compounds and also at levels significantly greater than non-impacted soil but remain lower than Canada provisional values.

We attributed a few factors to the overall low PFAS levels found in the region despite the large volume of AFFFs released. The cleanup effort implemented to remove petroleum hydrocarbons from wastewater appeared to have removed a significant portion of AFFFs and PFASs from the waste stream. The AFFFs used during the accident belong to the new generation of firefighting agents, free of perfluorooctane sulfonate (PFOS) perfluorooctanoic acid (PFOA), and are less bioaccumulative than the older formulations. Aside from verifying the effectiveness of PFOS ban in Quebec, the knowledge generated from the study provides insight into the fate and behaviors or PFAS in engineered water and soil treatment processes that are designed to remove petroleum hydrocarbon contaminants.

BIO: Dr. Jinxia Liu received her Bachelor of Engineering from Tianjin University (China), Master of Engineering from Rensselaer Polytechnic Institute (USA), and Ph.D. in soil chemistry from Purdue University (USA). Before joining McGill, she worked as a research analyst at DuPont USA and a research assistant professor at the University of Maryland. Dr. Liu focuses her work on environmental fate, behaviors, and bioavailability of emerging organic contaminants, particularly polyfluoroalkyl and perfluoroalkyl substances (PFAS). She is also developing novel materials and treatment processes to remove PFASs from contaminated water and soil. Her research provides industry, policy- and decision-makers with information to make sound decisions on the manufacture, assessment, and management of organic chemicals.