



Western University
Department of Physics and Astronomy

PHYSICS & ASTRONOMY COLLOQUIUM

Date: Thursday, 19 November 2020

Time: 1:30 p.m.

via Zoom:

Dr. Chris DeGroot

Department of Mechanical & Materials Engineering
Western University

“Fluid Mechanics and the COVID-19 Pandemic”

ABSTRACT

This talk explores the unlikely connections between two seemingly unrelated disciplines, namely fluid mechanics and virology, as they relate to the COVID-19 pandemic. SARS-CoV-2, the virus causing COVID-19, is excreted in feces and can be detected in wastewater treatment plants. This information can be used to estimate the size of the infected population and the trajectory of the epidemic. However, the fluid mechanics behind the transport of the virus through the sewer system, remains largely unexplored. This work looks into the degradation of the virus as it makes its way through the sewer system and is exposed to varying biochemical environments. Further, we will present experimental results on the inactivation of SARS-CoV-2 when exposed to UV irradiation in liquids, which are believed to be the first such results to be obtained. These results help us to determine whether existing wastewater disinfection systems provide enough protection against SARS-CoV-2 and can be extended to disinfection of other liquid products.

Host: Prof. O. Trichtchenko