SEMINAR NOTICE

Department of Physics and Engineering Physics
University of Saskatchewan

SPEAKER: Prof Daniel Andruczyk
University of Illinois

TOPIC*:* ***Using Liquid Lithium as a Plasma Facing Material in Nuclear Fusion Devices***

DATE: Tuesday February 11th, 2020

TIME: 3:30-4:30 p.m.

PLACE: Physics 103

ABSTRACT:

Nuclear fusion promises to be a future source of electricity that can provide base load power without adding to the overall carbon budget. Over the last several decades, fusion has made significant steps forward towards a working power plant, however there are still some fundamental issues that are yet to be fully understood and need to be solved. One of the most critical areas is the plasma material interactions (PMI) at the reactors first wall and divertor. DEMO and future fusion devices beyond ITER will most certainly have extremely high particle and heat loads, with excursions up to 100 MWm^{-2}. This presents a significant challenge for plasma facing components (PFCs). Up to now, solid materials such as graphite, molybdenum, tungsten and beryllium have been or are the preferred materials of choice for PFC's, but are essentially reaching their operating limits as well as provide other unique challenges to plasma operation. But there is a light at the end of the tunnel! Liquid metals (LM) offer potential solutions to many issues faces by solid surfaces. There have been several LMs have been explored as candidates over the years, Li, Sn, Ga and galinstan; however, Li seems to offer many benefits to plasma operation in general over other liquid metals. This seminar will take a look at some of the science and evolution of the use of liquid metals in fusion and how liquid metals will be used as PFCs for future fusion devices and the challenges that will need to be overcome. With Illinois being on of the pioneering labs in liquid metal technology, results from test stands at Illinois as well as experiments on large devices such as EAST will also be shown and discussed

Coffee and Cookies will be served in Physics lounge at 3:00 p.m. for those attending the seminar.