SEMINAR NOTICE

Department of Physics and Engineering Physics University of Saskatchewan

PLACE:	Physics 103
TIME:	3:30-4:30 p.m.
DATE:	Tuesday March 5 th , 2024
TOPIC:	The Future Circular Electron-Positron Collider FCC-ee
SPEAKER:	Dr. Jacqueline Keintzel, European Organization for Nuclear Research (CERN)

Abstract:

Although, with the discovery of the Higgs-Boson, the Standard Model of particle physics has been all but completed, numerous important questions of fundamental physics remain yet unanswered, longing for novel high energy physics experiments at higher intensities and energies. With a circumference of about 91 km the Future Circular electron-positron Collider, FCC-ee, is being designed to enable high energy physics experiments from the Z-pole up to above the top-pair-threshold, corresponding to center-of-mass energies from 91.2 to 365 GeV. Thanks to its flexibility, the FCC-ee would allow performing diverse lepton collision experiments at unprecedented precision, spanning over a wide parameter range. Combining state-of-the-art accelerator technologies with novel concepts while incorporating the experience from 60 years of lepton storage rings and collider physics, its design is currently being shaped to exceed past and current particle production rates (Z, W, H, t, b,...) by at least one order of magnitude at all operation stages. The FCC-ee has, therefore, unique potential of becoming the world-leading facility for accelerator science and high energy physics over the next decades. This seminar will reflect on crucial design choices and review the current status and challenges of the FCC-ee accelerator design and related technology R&D.