

SEMINAR NOTICE

Department of Physics and Engineering Physics
University of Saskatchewan

SPEAKER: Prof. Li Chen, Dept of Electrical & Computer Engineering
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TOPIC: *Radiation Effects in Microelectronics and Mitigation Techniques*

DATE: Tuesday October 20th, 2026

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

Room: Phys 103

The talk is organized into three main components: radiation environments in space and at ground level, radiation effects in silicon technologies, and mitigation techniques. It begins with an overview of the major radiation sources encountered both in space and on Earth, followed by a review of how radiation interacts with silicon-based technologies. Several CMOS platforms—including 2D planar CMOS, FDSOI, and FinFET processes—will be introduced and compared in terms of their electrical characteristics, physical structures, and susceptibility to radiation-induced effects. Radiation-hardening-by-design (RHBD) techniques will then be briefly introduced. The talk will also highlight a recent project involving a radiation-hardened 32-bit RISC-V microcontroller developed in a 22 nm FDSOI process, which demonstrated exceptional resilience to single-event effects (SEEs). The presentation will conclude with a comparative discussion of radiation tolerance across advanced CMOS technology generations.