



University
of Victoria

PHYSICS AND ASTRONOMY COLLOQUIUM (Online)

Dr. Shabir Barzanjeh
University of Calgary

“Exploring Nonlinearity in the Integrated Quantum Circuits”

Abstract

“Utilizing nonlinearity as a quantum resource not only facilitates the creation of entanglement, a fundamental aspect of quantum mechanics but also plays a crucial role in advancing quantum computing capabilities. This presentation highlights recent progress made by our team in leveraging nonlinear processes to generate entanglement and squeezing, with applications in quantum technology. The discussion includes the use of both Three and four-wave mixing processes in integrated optical and microwave circuits to develop robust nonclassical sources. The first part of my talk is devoted to employing topological photonic systems for generating photon pairs in the telecom band, while the second segment explores the utilization of superconducting kinetic inductance thin films for signal amplification and squeezing in the microwave domain.”

Wednesday, April 3rd, 2024

3:30 p.m. PST

BWC A104

<https://uvic.zoom.us/j/82440841193>