## **SEMINAR NOTICE**

### Department of Physics and Engineering Physics University of Saskatchewan

#### SPEAKER: Prof. Barry Sanders, University of Calgary. PUPSS

# **TOPIC:** *Kittens, cats and compasses: superposing coherent states for quantum sensing, quantum communication, quantum computing and quantum fun*

- **DATE:** Tuesday February 6th, 2024
- **TIME:** 3:30-4:30 p.m.
- PLACE: Physics 103

#### Abstract:

Glauber coherent states are semiclassical in the sense that that follow classical harmonicoscillator dynamics and are minimum-uncertainty states. A superposition of two macroscopically distinct coherent states is a Schrödinger cat state (alive and dead in superposition) and a kitten if not macroscopically distinct. Superposing two- and multi-mode coherent states is an entangled coherent state. Geometric intuition arises through quasiprobability representations, allowing us to talk about superposing coherent states on a line (relevant to bosonic qubits) and on a circle (e.g., compass states also relevant to bosonic qubits). I present this potted history followed by our proposal for making a nuclear cat state arXiv:2304.13813