



## QUANTUM OPTICS SEMINAR

**Title:** Some Like It Hot

**Speaker:** Blair Blakie  
Jack Dodd Centre for Photonics and Ultra-Cold Atoms,  
Department of Physics, University of Otago, Dunedin, New  
Zealand

**Time:** Monday, July 31, 2006 at 14:15

**Place:** 1525-323

**Abstract:**

In this talk I discuss a phase space technique based on the Wigner representation that provides an approximate description of dilute ultra-cold Bose gases at finite temperatures. As the quantum field evolution is represented using equations of motion for classical fields, this has become known as the "classical field method", although it does in general include quantum effects in a controlled degree of approximation. This technique provides a practical quantitative description of both equilibrium and dynamical properties of Bose gas systems.

In this talk I will provide a phenomenological motivation for the theory and present results of recent applications of the theory to the shift in critical temperature of a trapped interacting Bose gas, and to the low temperature phase diagram of a trapped 2D Bose gas.

Nicolai Nygaard