



PHYSICS AND ASTRONOMY COLLOQUIUM

Dr. J. Mike Roney

University of Victoria

“Applying EPR Entanglement to Observe Time-Reversal Violation & Searching for New Physics with BABAR”

Abstract

Collisions of electrons and positrons tuned to a specific centre-of-mass energy create pairs of particles containing a b-quark and anti-b-quark in an entangled state. I will discuss how the BABAR experiment used the Einstein--Podolsky--Rosen effect to make the first unambiguous, direct observation of the violation of time-reversal invariance and how it provides a unique test of CPT symmetry, a fundamental feature of conventional quantum field theory. I will also present other searches for evidence for new physics with the BABAR experiment.

Wednesday, October 30, 2013

3:30 p.m.

Bob Wright Centre

Room A104