FLEET
ARC CENTRE OF EXCELLENCE IN FUTURE LOW-ENERGY ELECTRONICS TECHNOLOGIES

ANGULAR MOMENTUM OF BCS-BEC FERMIONIC SUPERFLUIDS WITH MULTIPLY QUANTIZED VORTICES

Professor Victor Gurarie

University of Colorado

Hear Bose-Einstein condensate research from University of Boulder Colorado regarding quantised vortices and superfluidity, key to dissipationless particle flow studied at FLEET.

ABSTRACT:

Angular momentum of a Bose-Einstein condensate in the presence of a quantized vortex is known to be $\hbar$ times the number of particles in the condensate. In the presence of a vortex of vorticity larger than 1, the angular momentum is then $\hbar$ times the vorticity times the number of particles. This obviously also works in the far BEC regime of the BCS-BEC fermionic superfluid with a vortex, where the angular momentum is $\hbar$ times the vorticity times the number of bosonic molecules. I will discuss how this breaks down in the BCS regime of a fermionic superfluid with vortices of vorticity larger than 1, where the angular momentum turns out to be significantly lower than in the BEC regime.

ABOUT THE SPEAKER:

Prof Gurarie is Director of the Center for Theory of Quantum Matter at the University of Colorado Boulder, researching macroscopic quantum matter, unifying condensed matter, atomic, molecular and optical physics, nuclear physics and quantum information science.

When: **THURSDAY 10th August, 2017**
Time: **2.00pm**
Where: **G29 New Horizons Centre**
20 Research Way, Clayton Campus
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