MONTANA STATE UNIVERSITY | College of LETTERS & SCIENCE

Physics Colloquium

Friday, November 17, 2017
4:10 – 5:00 PM

Superfluid Helium-3 in tight spaces

Professor Anton Vorontsov
MSU Department of Physics
http://www.physics.montana.edu/avorontsov/index.html
http://www.physics.montana.edu/avorontsov/research.html

Abstract:

Superfluid Helium-3 can be easily called a "wonder material" with very rich physics that finds close analogies in many different subfields, from superconductors and strongly correlated materials to particle physics and cosmology. I will present a general introduction to closely related phenomena of superconductivity in metals and superfluidity in Helium-3, and describe what makes this substance so interesting. He-3 is one of the most studied and well-understood condensed matter systems, that serves as theory-and-experiment testing ground for many new phenomena. Presently it is utilized to gain understanding of quantum phases that arise in strongly confined geometries. The newly emphasized aspect of this field are the quasiparticle states appearing near surfaces of novel materials, and their origin in ideas of symmetry and topology.

This talk, in part, will touch on the research project that I started during sabbatical leave last year.

Host: Rufus Cone

**** Refreshments served in the Barnard Alcove opposite Barnard 258 at 3:45 ****