

PHYSICS DEPARTMENT COLLOQUIUM

“³HE AND NEUTRONS GIVE THEIR LIVES FOR NUCLEAR
KNOWLEDGE”

BY

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Recent advances in the production of spin polarized ³He have led to a number of new uses for the polarized gas. In neutron physics, polarized ³He can be used as a neutron spin filter to produce cold, polarized neutron beams. Although this is “the hard way” to polarize neutrons, it has advantages for fundamental symmetry, nuclear physics, and materials science experiments where beam divergence or absolute polarimetry are important. After an introduction to ³He based neutron spin filters, the “NPDGamma” experiment (testing the weak coupling between nucleons) will be discussed as one of the first nuclear experiments requiring a ³He based neutron polarizer.

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