Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Bose-Einstein Condensation in liquid ^{4}He films[1] JONATHAN PEARCE, Institut Laue Langevin, SOULEYMANE DIALLO, University of Delaware, RICHARD AZUAH, NIST Center for Neutron Research, TOM ARNOLD, ISIS Pulsed Neutron Facility, JOHN LARESE, University of Tennessee, HENRY GLYDE, University of Delaware — Neutron scattering measurements of Bose-Einstein condensation in liquid ^{4}He fils will be presented. The measurements were carried out on the MARI time-of-flight spectrometer at the CCLRC ISIS Facility, Rutherford Appleton Laboratory, UK. The goal is to determine whether the condensate fraction, n_0, is enhanced above the bulk liquid value at a liquid ^{4}He surface. It is also to determine n_0 in 2D thin films and, by varying the film thickness, observe a 2D to 3D cross-over. Data for films on a flat MgO substrate [1] and on carbon-black will be presented. The data shows, that n_0 is indeed significantly enhanced at a film - vapor surface suggesting a lower liquid density there [2].

[1] J.V. Pearce *et al.*, *J. Phys. Condens. Matter* **16**, 4391 (2004)
[2] E.W. Drager and D.M. Ceperley, *Phys. Rev. Lett.* **89**, 15301 (2002)

[1]Work supported by BES DOE, DE-FG02-03ER46038 and ISIS.

Souleymane Diallo
University Of Delaware

Date submitted: 03 Dec 2005 Electronic form version 1.4