

Abstract Submitted
for the CAL12 Meeting of
The American Physical Society

Measurements of the Critical Casimir Effect and Superfluid Density in ^4He Films JOHN ABRAHAM, GARY WILLIAMS, UCLA Department of Physics and Astronomy, KONSTANTIN PENANEN, Jet Propulsion Laboratory, NASA — We report the results of experiments on ^4He films in the vicinity of the bulk superfluid transition temperature T_λ . A novel experimental apparatus allows measurements of film thinning due to the critical Casimir effect as well as the superfluid density of the film via third sound measurements. The temperature where the the Casimir film thinning begins to occur is found to be very close to the Kosterlitz-Thouless superfluid transition temperature in the film. Additionally, a new film-thickening effect is observed at T_λ when the temperature is swept extremely slowly.

John Abraham
UCLA Department of Physics and Astronomy

Date submitted: 26 Sep 2012

Electronic form version 1.4