Abstract Submitted for the SES05 Meeting of The American Physical Society

Ultrasound Attenuation in Liquid <sup>3</sup>He/High Porosity Aerogel<sup>1</sup> H.C. CHOI, N. MASUHARA, J.-H. PARK, M.W. MEISEL, Y. LEE, Dept. of Physics, University of Florida, Gainesville, FL 32611-8440, USA, N. MULDERS, Dept. of Physics and Astronomy, University of Delaware, Newark, DE 19716, USA — High porosity silica aerogels have been extensively used to study the influence of disorder in p-wave superfluid <sup>3</sup>He. Experimental investigations performed during the last decade revealed three distinct superfluid phases in liquid  ${}^{3}\text{He}$  /98% aerogel system. The three phases found in this system are called as A, B, and A<sub>1</sub>-like phases (using the same nomenclature as in the bulk), although only the spin component of the order parameter has been studied and found to resemble that of corresponding bulk phases. A complete understanding of the microscopic structure of the p-wave superfluid phases requires identification of both orbital and spin components of the order parameter. Until now, there is no experimental attempt to directly probe the orbital structure in  ${}^{3}\text{He}/\text{aerogel}$  system. To resolve this issue, we performed acoustic measurements by direct transmission of ultrasound through the  ${}^{3}\text{He}/98\%$ aerogel sample. We will present and discuss our preliminary results.

<sup>1</sup>This work was partially supported by an Alfred P. Sloan Research Fellowship (YL), NSF grants DMR-0239483 (YL) and DMR-0305371 (MWM).

Hyunchang Choi Dept. of Physics, University of Florida, Gainesville, FL 32611-8440

Date submitted: 09 Aug 2005

Electronic form version 1.4