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Ultrasonic Spectroscopy in Liquid ^{3}He in 98% Porosity Aerogel by Direct Propagation[1] H.C. CHOI, N. MASUHARA, J.-H. PARK, M.W. MEISEL , Y. LEE, Dept. of Physics, University of Florida, P.O. Box 118440, Gainesville, FL 32611, USA, N. MULDERS, Department of Physics and Astronomy, University of Delaware, Newark, DE 19716, USA — Systematic investigations on the effect of static disorder on *p-wave* superfluid ^{3}He have been made possible by utilizing its unique structure of high porosity silica aerogel. For the past 10 years, a burst of experimental effort revealed that three distinct superfluid phases exist in the P-H-T phase diagram of the ^{3}He/98% aerogel system. These three phases are conveniently named the A-, B-, and A_1-phases as in the bulk, although only spin structures of the superfluid phases have been identified. In particular, the verdict on the so called A-phase is by no means conclusive. As has been the case in the bulk, for a clear identification of the order parameter structure, both spin and orbital components need to be examined. We report our preliminary results of sound propagation in an attempt to directly investigate the orbital structure of the superfluid phases in 98% aerogel using a pulsed ultrasound spectroscopic technique. Preliminary data for the transmission and the surface impedance will be presented.

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