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Direct Sound Propagation in Superfluid ^{3}He-A in 98% Aerogel[1] B. H. MOON, N. MASUHARA, P. BHUPATHI, M. GONZALEZ, M. W. MEISEL, Y. LEE, NHMFL and Dept. of Phys. Univ. of Florida, Gainesville, FL 32611, N. MULDERS, Dept. of Phys and Astronomy, University of Delaware, Newark, DE 19716
— Liquid ^{3}He impregnated in high porosity aerogel has been studied extensively in recent years since its unique structure provides static impurities in this system. The fragile nature of p-wave Cooper pairs against impurity was clearly demonstrated by the significant depression of the superfluid transition. The scattering off the aerogel also significantly modifies the low energy excitation by inducing impurity bound states inside the gap. Recent ultrasound attenuation measurements performed in the B-like phase of superfluid ^{3}He in 98% porosity aerogel revealed many interesting features and provided strong experimental evidence of gapless superfluidity. We conducted high frequency sound propagation measurements at 6.22 MHz in the A-like phase of superfluid ^{3}He. The A-like phase is stabilized by magnetic fields (up to 4 kG) applied perpendicular to the direction of sound propagation. We present our preliminary results of ultrasound attenuation down to the zero temperature limit at 29 bar and the field dependent A-B transition identified by the jump in attenuation.

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