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The Suppression of the B-like Phase of Superfluid ^{3}He in Aerogel by Magnetic Fields[1] YOONSEOK LEE, BYOUNG HEE MOON, University of Florida, NAOTO MASUHARA, NHMFL, PRADEEP BHUPATHI, MIGUEL GONZALEZ, MARK MEISEL, University of Florida, NOBERT MULDERS, University of Delaware — The phase diagram of superfluid ^{3}He in 98 % aerogel has been determined as a function of the pressure (P), temperature (T), and magnetic field (H). The transition features were identified in longitudinal ultrasound attenuation. The sound attenuation was measured at five pressures ($14 \sim 33$ bar) and four frequencies between 3.6 and 11.3 MHz in the presence of magnetic fields up to 4.5 kG. The superfluid transition is marked by a rather rapid change in attenuation at the normal liquid to superfluid phase transition. The A-B like phase transition appears as a smooth jump in attenuation. We found that the B-like phase in aerogel is suppressed in a completely different manner than in bulk, indicating that the poly-critical point is indeed pushed up in pressure and the anisotropic scattering plays an important role in this system.

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