

Ultrasound Propagation in Dense Aerogels Filled with Liquid ^4He

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Longitudinal ultrasound propagation was studied in dense aerogels filled with liquid ^4He . Sound velocity and attenuation were measured at the frequency of 6 and 10 MHz in both normal and superfluid phases. The aerogels used had porosities about 85%. They had two different types of structure, tangled strand structure and aggregated particles structure. Their pore size were homogeneous with narrow pore distribution.

Superfluid suppression mainly depended on not porosity but mean pore size. The structure of gel played an important role in sound velocity and attenuation. Pressure dependence of sound velocity and attenuation in these dense gels were also studied.