Widths of NMR lines of superfluid ^{3}He confined by "ordered" aerogel

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The"ordered" aerogel consists of Al_2O_3 strands which are nearly parallel to each other. Consequently this aerogel has a strong anisotropy, which distinguishes it from conventional silica aerogels. This anisotropy influences on the order parameter of superfluid phases of ^{3}He in such aerogel. In particular, theory predicts that in this case ABM order parameter should have polar distortion and near the superfluid transition temperature the pure polar phase may emerge[1]. In the experiments described in[2] we proved that the observed high temperature superfluid phase of ^{3}He in "ordered" aerogel (ESP1 phase) has ABM order parameter with strong polar distortion and the lower bound of this distortion was determined. Unfortunately equations of spin dynamics of the distorted ABM phase and the pure polar phase are the same. This fact complicates the exact determination of "distorted ABM - pure polar" phase transition point using only NMR frequency shift data. Here we present results of continuous wave (CW) NMR experiments focused on measurements of NMR linewidths. At low pressures we have observed a certain peculiarity in temperature dependence of CW NMR linewidth at some temperature near the superfluid transition. We assume that this peculiarity appears due to this transition. The obtained phase diagram will be presented.

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