NMR properties of the distorted axi-planar superfluid phase of ^{3}He in the "nematically ordered" aerogel

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In the recent NMR experiments in the "nematically ordered" aerogel new superfluid state of ^{3}He called ESP2 (Equal Spin Pairing state) was observed. Motivated by this result in our recent paper we reported that in the superfluid ^{3}He subjected to a strong uniaxial anisotropy there appears additional local minimum of Ginzburg-Landau free energy, corresponding to a new phase. In the weak coupling limit the order parameter of this phase coincides with that of the axi-planar phase. In the present report the NMR-properties of this phase are considered in more details. For identification of the new phase the most informative is the NMR shift, measured at a perpendicular orientation of the d.c. magnetic field with respect to the principal anisotropy axis of "nematic" aerogel. Additional deformation of aerogel in a direction perpendicular to this axis lifts degeneracy of the orbital part of the order parameter. For this geometry NMR frequency shift for arbitrary orientation of the order parameter relative to the direction of the magnetic field is found. The answer for Larkin-Imry-Ma state of the new phase is also given.

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