

Pulse NMR of ^3He in aerogel at temperature 1.5 K

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Abstract

Experimental data of ^3He pulse NMR in contact with aerogel (95%) in a nuclear Larmor frequency range of 5 to 20 MHz at $T=1.5$ K are reported. For the first time spin kinetics of ^3He (adsorbed, gaseous and liquid) has been studied systematically at temperatures higher than degeneracy temperature of this quantum liquid. It has been shown, that in all cases the nuclear spin-lattice relaxation time T_1 is linearly proportional to the Larmor frequency, while the spin-spin relaxation time T_2 is frequency independent. The magnetic relaxation times T_1 and T_2 are linearly proportional to the ratio of the magnetization of whole spin system to magnetization of the adsorbed layer of ^3He . © 2009 IOP Publishing Ltd.

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