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Effect of surface magnetism of solid-state substrates on the NMR of liquid ^3He

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Abstract

The results of investigations of the longitudinal relaxation rate of the nuclear spins of liquid helium-3 in contact with finely dispersed LiYF_4 dielectric powders with various degrees of filling of the microcracks on the crystal surface by water molecules are reported. It is found that exchange correlations appear between paramagnetic defect centers on the surface as a result of spin-density transfer via the molecular orbitals of oxygen in the water molecule. © 1999 American Institute of Physics.
