# SPIN DIFFUSION AND RELAXATION IN DILUTED MAGNETIC ALLOYS.

**A. L. Kuzemsky**
Bogoliubov Laboratory of Theoretical Physics,
Joint Institute for Nuclear Research,
141980 Dubna, Moscow Region, Russia
e-m: kuzemsky@thsun1.jinr.ru

The theory of the nuclear spin relaxation in solids is formulated from general statistical-mechanical arguments. The generalized kinetic equations for a system weakly coupled to a thermal bath are used to describe the relaxation and diffusion of nuclear spins in solids. The aim was to develop a successive and coherent microscopic description of the nuclear magnetic relaxation and diffusion in solids. The nuclear spin-lattice relaxation is considered and the Gorter relation is derived. A detailed theory of spin diffusion of the nuclear magnetic moment in dilute alloys ( like Cu-Mn) is developed. It is shown, that due to the dipolar interaction between host nuclear spins and impurity spins, a nonuniform distribution in the host nuclear spin system will occur and consequently the macroscopic relaxation time will be strongly determined by the spin diffusion. The explicit expressions for the relaxation time in certain physically relevant cases are given.

9.7 cm

13.4 cm

**Subject category :**
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**Corresponding author :**
A. L. Kuzemsky

**Address for correspondence :**
Bogoliubov Laboratory of Theoretical Physics,
Joint Institute for Nuclear Research,
141980 Dubna, Moscow Region, Russia

**Email address :**
kuzemsky@thsun1.jinr.ru