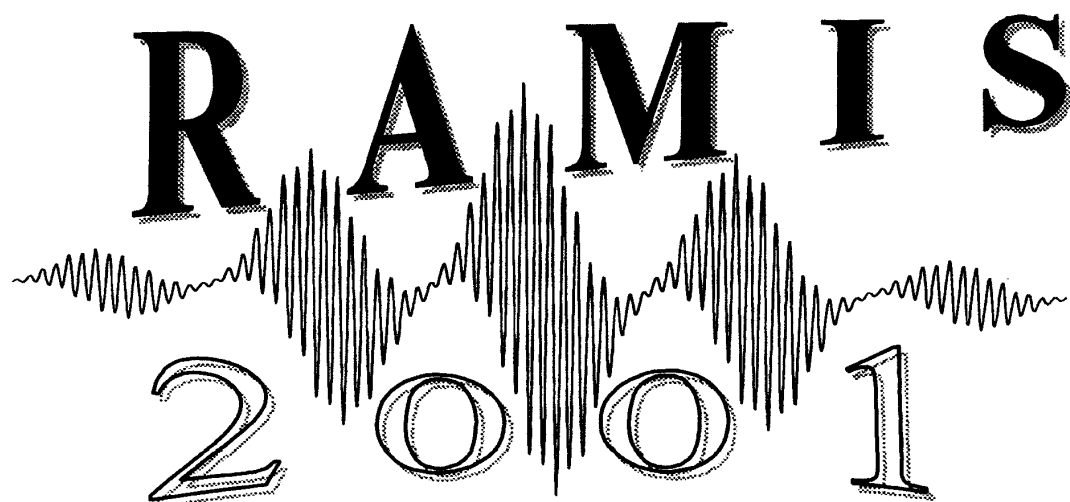


# ABSTRACTS

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## NMR LINESHAPES IN SOLIDS WITH MOLECULAR MOBILITY

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The problem of the NMR lineshapes or free induction decays (FID) in solids with molecular mobility is well known although still unsolved [1-3]. At present time a variety of approaches have been proposed in order to resolve this problem. One from these approaches is the moment method proposed in the papers [4,5]. In this method the shape of FID  $G(t)$  is approximated by a Taylor series

$$G(t) = \sum_{n=0}^{\infty} \frac{(it)^n}{n!} a_n . \quad (1)$$

In the rigid lattices the coefficients  $a_n$  are coincided with the Van-Vleck's moments [6]. In the solids with molecular mobility the first coefficients  $a_n$  can be also easily calculated [4,5,7]

$$a_0 = 1 , \quad a_1 = 0 , \quad a_2 = M_2 , \quad a_3 = i \frac{\Delta M_2}{\tau_c} , \quad a_4 = M_4 - \frac{\Delta M_2}{\tau_c^2} . \quad (2)$$

The other approach has been proposed in [8,9]. In this approach the NMR lineshape  $f(\Delta\omega)$  is represented in the form of an infinite fraction

$$f(\Delta\omega) = \text{Re} \frac{1}{i\Delta\omega - i\omega_0 + \frac{v_0^2}{i\Delta\omega - i\omega_1 + \frac{v_1^2}{i\Delta\omega - i\omega_2 + \frac{v_2^2}{\ddots}}}} . \quad (3)$$

The coefficients  $v_n^2$  and  $\omega_n$  are connected with coefficients  $a_n$  [8,9]. In the case of rigid lattice it follows from Eq.(3) the well known result [10]. In this report the different approximations to the calculation of the infinite fraction (3) will be discussed. The obtained results will be compared with known and obtained experimental results.

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