Jozef Stefan Institute, Department of Theoretical Physics

Solid State Group Seminars

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Laser controlled magnetization within large anisotropy $S = 1$ chain

Time evolution of the magnetization within large anisotropy $S = 1$ Heisenberg chain and circularly polarized laser (rotating magnetic filed) is studied numerically and analytically. Results with constant laser frequency $\Omega = \Omega_0$ are interpreted in terms of absorption lines of electronic spin resonance spectrum. It is also shown that time dependent laser frequency $\Omega = \Omega(t)$, the so–called chirping of the laser, is better protocol in order to get larger value of the magnetization or to magnetize the system fast. Both of the protocols yield orders of magnitude larger M^z for Hamiltonian with $D > J$ than for adequate setups for Halden–like systems $D < J$. Furthermore, comparison of large anisotropy D results with with two–level toy model give satisfactory agreement.

Friday, March 27, 2:30pm

Čajna soba F1, Jozef Stefan Institute