The Effect of competition between the frequency of the field and the frequency of the spin flipping on the kinetics of Ising metamagnet

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We consider the effect of a variable representing the competition between the frequency of the field and the frequency of the spin flipping ($\Omega$) on the dynamics of the metamagnetic Ising model in a cubic lattice, subject to the time varying external magnetic field. The system is modelled with a formalism of master equation at a meanfield level. The time averaged staggered magnetization ($M_s$) acts as the order parameter and divides temperature field plane into three regions: anti-ferromagnetic, paramagnetic and coexistence of anti-ferromagnetic and paramagnetic phases. It is observed that the topology of the dynamical phase diagram depends strongly on $\Omega$ as well as the ratio between interlayer and intralayer couplings.