9.7 cm

SIMULATIONS OF NOISE-FREE STOCHASTIC RESONANCE IN SPIN-WAVE CHAOS

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Numerical simulations of noise-free stochastic resonance and aperiodic stochastic resonance in chaotic nonlinear ferromagnetic resonance in coincidence regime are presented. The model is based on three-magnon interactions of pairs of parametric spin waves with the uniform mode and shows on-off intermittency. The dc field is slowly modulated by a small periodic or aperiodic signal, and the output signal which reflects the occurence of laminar phases and bursts in the time series of spin-wave amplitudes is analyzed. The output signal-to noise ratio or the correlation function between the modulating and input signal show maximum as the rf field amplitude is varied, which indicates the occurence of stochastic resonance and aperiodic stochastic resonance, respectively. The role of thermal magnon excitations in the occurence of this maximum is clarified. The results are compared with experimental results, obtained with other kinds of intermittency.

13.4 cm

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