Stochastic Resonance in Duffing Oscillator

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The effect of stochastic resonance is observed in non-linear systems, including biological systems, communications and geophysical (seismic) processes. The effect itself means strengthening the effects of weak signals with help of noise. The effect is examined in bi stable systems. In report we have the dynamics of bi stable duffing oscillator with white and pink noise. Numerical experiment shows us that threshold and amplitude of noise in stochastic resonance depends on the type on the noise. Furthermore we have examined the non-harmonic impulse. The resonance is available with square waves. We have used phasic plots and recurrence analysis for our research. Also we counted the information entropy as the amount of information in stochastic systems and as the size or uncertainty in dynamic systems. The report tells about the connections between information, stochastic resonance and dynamics.