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The mechanism of stochastic resonance: from climatic change to biology (Lewis Fry Richardson Medal Lecure)

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We review the mechanism of stochastic resonance (SR) as originally applied to explain ice ages. We discuss how SR is a generic mechanism for stochastic and chaotic system subjected to small periodic perturbations. We shortly review how SR has been investigated in a variety of physical and biological systems. Finally, we outline new research problems, which may become relevant in the next few years.