

# Pseudo resonance induced quasi-periodic behavior in stochastic threshold dynamics

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(Submitted on 7 Jun 2011)

Here we present a simple stochastic threshold model consisting of a deterministic slowly decaying term and a fast stochastic noise term. The process shows a pseudo-resonance, in the sense that for small and large intensities of the noise the signal is irregular and the distribution of threshold crossings is broad, while for a tuned intermediate value of noise intensity the signal becomes quasi-periodic and the distribution of threshold crossings is narrow. The mechanism captured by the model might be relevant for explaining apparent quasi-periodicity of observed climatic variations where no internal or external periodicities can be identified.

Comments: 8 pages, 4 figures, to appear in Stochastics and Dynamics

Subjects: **Chaotic Dynamics (nlin.CD)**; Mathematical Physics (math-ph)

Cite as: [arXiv:1106.1285](https://arxiv.org/abs/1106.1285) [nlin.CD]

(or [arXiv:1106.1285v1](https://arxiv.org/abs/1106.1285v1) [nlin.CD] for this version)

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[v1] Tue, 7 Jun 2011 09:08:32 GMT (541kb)

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