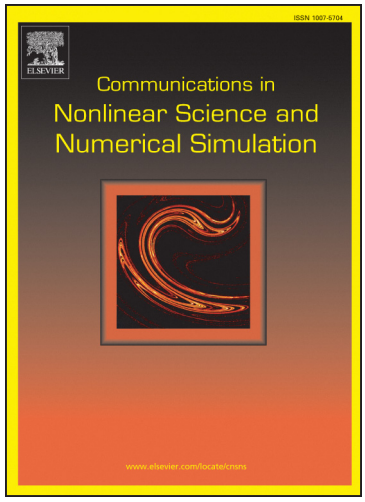


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Iacyel G. Silva, Osvaldo A. Rosso, Marcos V. Dias Vermelho, Marcelo L. Lyra

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# Ghost stochastic resonance induced by a power-law distributed noise in the FitzHugh-Nagumo neuron model

Iacyel G. Silva [a], Osvaldo A. Rosso [a,b,c], Marcos V. Dias Vermelho [a] and Marcelo L. Lyra [a]

[a] *Instituto de Física, Universidade Federal de Alagoas, 57072-970 Maceió, AL - Brazil.*

[b] *LaCCAN/CPMAT - Instituto de Computação, Universidade Federal de Alagoas, 57072-970 Maceió, AL - Brazil.*

[c] *Laboratorio de Sistemas Complejos, Facultad de Ingeniería, Universidad de Buenos Aires, Buenos Aires - Argentina.*

**Abstract**

We numerically investigate the ghost stochastic resonance phenomenon induced by a power-law distributed noise in the neuron FitzHugh-Nagumo model. The input noise considered is produced by a Langevin process including both multiplicative and additive Gaussian noise sources. In this process, the power-law decay exponent of the resulting noise distribution is governed by the off-set of the multiplicative noise, thus allowing us to probe both regimes of Gaussian and strongly non-Gaussian noises. Ghost stochastic resonance, i.e., stochastic resonance in a missing fundamental harmonic, occurs in this model. Deviations from the Gaussianity of the input noise are shown to reduce both the additive noise intensity corresponding to the optimal identification of the missing fundamental as well as the number of firing events at the ghost stochastic resonance condition.

*Key words:* stochastic resonance, ghost resonance, power-law noise, neuron model

[1] ciel33@yahoo.com
[2] oarosso@gmail.com
[3] vermelho@fis.ufal.br
[4] marcelo@fis.ufal.br