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Evaluation of Systems' Irregularity and Complexity: Sample Entropy, Its Derivatives, and Their Applications across Scales and Disciplines

Guest Editor:

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Deadline for manuscript submissions:
closed (30 April 2018)

Message from the Guest Editor

Dear Colleagues,

A number of entropy measures have been proposed to assess systems' irregularity, among them, sample entropy has been used in a very large variety of disciplines. However, improvements of the sample entropy algorithm are still proposed because it is unstable for short time series, may be sensitive to the parameter values, and can be too time consuming for long data. Meanwhile, it is worth noting that sample entropy doesn't take into account the multiple temporal scales inherent to complex systems. It is maximized for completely random processes and is used only to quantify the irregularity of signals on a single scale. This is why analyses of irregularity—with sample entropy or its derivatives—at multiple time scales have been proposed to assess systems' complexity.

This Special Issue invites contributions that present the use of sample entropy or its derivatives. Studies applying sample entropy or its derivatives on a single scale or on multiple scales, as well as applications on any kind of time series, are welcome.

Prof. Anne Humeau-Heurtier
Guest Editor

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Editor-in-Chief

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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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