

Recognition of nonextensive statistical distributions by the eigencoordinates method

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Abstract

Nonextensive statistical distributions suggested by Tsallis are studied in the framework of the so-called eigencoordinates (ECs) method which allows to recognize them with high level of authenticity. At first, the possibilities of the ECs method have been demonstrated on model files to exhibit some peculiarities of this new method. Then the amplitude distributions of the real noise tracks before and after earthquakes have been analyzed. It has been shown that this type of noise is fractal and strongly correlated; histograms of the noise amplitudes with high level of reliability are really described by a distribution coming from nonextensive statistics. The possibilities and recommendations for the application of the ECs method to identify theoretical curves claimed for the description of experimental data are discussed.

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