

Piterbarg, V. I.

High excursions for nonstationary generalized chi-square processes. (English) Zbl 0815.60045
Stochastic Processes Appl. 53, No. 2, 307-337 (1994).

Let $X(t)$, $t \in [0, T]$, be a centered differentiable Gaussian random process and let $X_1(t), \dots, X_n(t)$ be independent copies of $X(t)$. Assume that the variance of the process $X(t)$ attains its global maximum in only one inner point of the interval $[0, T]$. The author investigates an exact asymptotic behavior of large deviation probabilities for the generalized chi-square process $\chi_b^2(t) = \sum_{i=1}^n b_i^2 X_i^2(t)$, where b_1, b_2, \dots, b_n are positive constants. The paper uses asymptotic methods for the investigation of large deviation probabilities of Gaussian processes and fields, especially the so-called "double sum method" of the author [Asymptotic methods in the theory of Gaussian stochastic processes and fields (1988; [Zbl 0652.60045](#))].

Reviewer: [W.Dziubdziela \(Wrocław\)](#)

MSC:

[60G70](#) Extreme value theory; extremal stochastic processes

[60G60](#) Random fields

[60F10](#) Large deviations

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Keywords:

Gaussian random process; asymptotic behavior of large deviation probabilities; large deviation probabilities of Gaussian processes

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