

ON EXTREMAL INDEX OF MAX-STABLE STATIONARY PROCESSES

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Abstract: In this contribution we discuss the relation between Pickands-type constants defined for certain Brown–Resnick stationary process $W(t), t \in \mathbb{R}$, as

$$\mathcal{H}_W^\delta = \lim_{T \rightarrow \infty} T^{-1} \mathbb{E} \left\{ \sup_{t \in \delta \mathbb{Z} \cap [0, T]} e^{W(t)} \right\}, \quad \delta \geq 0$$

(set $0\mathbb{Z} = \mathbb{R}$ if $\delta = 0$) and the extremal index of the associated max-stable stationary process ξ_W . We derive several new formulas and obtain lower bounds for \mathcal{H}_W^δ if W is a Gaussian or a Lévy process. As a by-product we show an interesting relation between Pickands constants and lower tail probabilities for fractional Brownian motions.

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