ASYMPTOTICS OF THE SUPRENUM OF SCALED BROWNIAN MOTION

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Abstract: We consider the problem of estimating the tail of the distribution of the supremum of scaled Brownian motion $B(f(t))$ processes with linear drift.

Using the local time technique we obtain asymptotics and bounds of

$$P\left(\sup_{t \geq t_0} (B(f(t)) - t) > u\right),$$

which are expressed in terms of the expected value of the local time of $B(f(t)) - t$ processes at level $u$.

As an application we obtain upper bounds for the tail of distribution of the supremum for some Gaussian processes with stationary increments.

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