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**Some applications of the Strassen law of iterated logarithm for normalized integrals of processes with weak dependence.** (English. Ukrainian original) [Zbl 0960.60030](#)

*Theory Probab. Math. Stat.* 59, 11-19 (1999); translation from *Teor. Jmrvirn. Mat. Stat.* 59, 10-19 (1998).

For a strictly stationary random process  $X(t)$  with  $EX(t) = 0$ ,  $EX(t)^5 < \infty$  which satisfies the  $\varphi$ -mixing condition with  $\int_0^\infty \varphi^{1/2}(\tau) d\tau < \infty$ , Strassen's law of iterated logarithm is proved. I.e., it is shown that for a sequence of processes

$$\zeta_n(t) = \frac{1}{\sqrt{2\sigma^2 n \ln \ln n}} \int_0^{nt} X(s) ds,$$

where  $\sigma^2 = 2 \int_0^\infty EX(0)X(t) dt$ , the set of limit points in  $C[0, 1]$  as  $n \rightarrow \infty$  is the set of absolutely continuous functions  $x(t)$  such that  $x(0) = 0$ ,  $\int_0^1 (x'(t))^2 dt \leq 1$ . This result is applied to analyze the asymptotic behavior of solutions of the differential equations  $Z'_n(t) = \frac{1}{n}[a(t, Z_n(t)) + X(t)]$  as  $n \rightarrow \infty$ .

Reviewer: [R.E.Maiboroda \(Kyïv\)](#)

**MSC:**

[60F17](#) Functional limit theorems; invariance principles

[60G10](#) Stationary stochastic processes

**Keywords:**

functional law of iterated logarithm; strong mixing condition; stationary random process; differential equation with random right part