Yor, M.

Renormalisation et convergence en loi pour les temps locaux d'intersection du mouvement brownien dans $\mathbb{R}^3$. (French) Zbl 0569.60075

Sémin. de probabilités XIX, Univ. Strasbourg 1983/84, Proc., Lect. Notes Math. 1123, 350-365 (1985).

[For the entire collection see Zbl 0549.00007.]

In this paper a generalization, in a modified form, of a result obtained by Varadhan for Brownian motions $(B_t, t \geq 0)$ having values in $\mathbb{R}^2$ to the case of Brownian motions having values in $\mathbb{R}^3$ is given. More exactly, it is proved that:

$$(B_t; \quad (\log|y|^{-1})^{-1/2}\{2\pi\alpha(y;T_t) - t|y|^{-1}\}; \quad t \geq 0) \to^{(d)}_{y\to 0} (B_t; \quad 2\beta_t, \quad t \geq 0),$$

where $(\beta_t, t \geq 0)$ is a real Brownian motion starting from 0, independent of B, and (d) indicates the convergence in distribution associated with the topology of compact convergence on the canonical space.

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