Makhno, S. Ya.

A theorem on large deviations for one class of diffusion processes. (English. Russian original)
Zbl 0838.60024
Theory Probab. Appl. 39, No. 3, 437-447 (1994); translation from Teor. Veroyatn. Primen. 39, No. 3, 554-566 (1994).

The author proves large deviations as $\varepsilon \to 0$ for trajectories of R^d-valued diffusions which solve the stochastic differential equation

$$\xi^\varepsilon(t) = x + \varepsilon \int_0^t \sigma^\varepsilon\big(s, \xi^\varepsilon(s)\big) dW(s)$$

with the coefficient $\sigma^\varepsilon(t,x)$ that depends on a small parameter ε. The main assumption of the paper is that the limit $\lim_{\varepsilon\to 0} \varepsilon^2 \ln E \exp(\varepsilon^{-2} \int_0^T (\psi, d\xi^\varepsilon))$ exists for all piecewise smooth functions ψ and is given by a suitable bilinear expression in ψ.

Reviewer: W.Bryc (Cincinnati)

MSC:

60F10 Large deviations
60J60 Diffusion processes
60H10 Stochastic ordinary differential equations (aspects of stochastic analysis)

Keywords:

small parameter expansions; large deviations; diffusions; stochastic differential equation