

THE EXISTENCE OF THE EFFECTIVE DIFFUSIVITY TENSOR FOR
DIFFUSIONS WITH INCOMPRESSIBLE MIXING DRIFTS

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Abstract: In the present article we consider a model of motion of a passive tracer particle under a random, non-steady (time dependent), incompressible velocity flow in a medium with positive molecular diffusivity. We show the existence of the effective diffusivity tensor for the flow provided that its relaxation time is sufficiently small. In contrast to the previous papers [23], [6], [20] we do not assume the existence of the stationary and integrable stream matrix for the flow.

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