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A singular limit in a fractional reaction-diffusion equation with periodic coefficients. (English) [Zbl 1417.35069](#)

Commun. Math. Sci. 17, No. 2, 565-586 (2019).

Summary: We provide an asymptotic analysis of a non-local Fisher-KPP-type equation in periodic media and with a non-local stable operator of order $\alpha \in (0, 1)$. We perform a long time-long range scaling in order to prove that the stable state invades the unstable state with a speed which is exponential in time.

MSC:

[35K57](#) Reaction-diffusion equations

[35B40](#) Asymptotic behavior of solutions to PDEs

[35Q92](#) PDEs in connection with biology, chemistry and other natural sciences

Cited in **1** Document

Keywords:

non-local fractional operator; Fisher KPP; asymptotic analysis; exponential speed of propagation; perturbed test function

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