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# Asymptotic behavior of an inhomogeneous nonlocal equation

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## Abstract

In this talk we will study the asymptotic behavior of the solutions of

$$u_t(x, t) = \int_{\mathbb{R}} J\left(\frac{x-y}{g(y)}\right) \frac{u(y, t)}{g(y)} dy - u(x, t),$$

with

$J : \mathbb{R} \rightarrow \mathbb{R}$  is a nonnegative even function with compact support such that

$$\int_{\mathbb{R}} J(y) dy = 1.$$

In this equation the dispersal is inhomogeneous in space since the step size  $g(y)$  depends on the position  $y$ . In this talk we will study the asymptotic behavior of the initial value problem depending on the various behaviors of the step size function. Of special interest will be to prove the existence of  $L^1$  steady state solutions, which characterize the asymptotic behavior of finite mass solutions.

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