Publications by Attiogbe Anoumou, AIMS Senegal

This report summarizes the recent research results produced as a former AIMS- DAAD project scholarship holder at AIMS Senegal.

Authors: A. Attiogbe, M. M. Fall and T. Weth.
Title: Short time existence and smoothness of nonlocal mean curvature flow of graphs.

Abstract: We consider the geometric evolution problem of entire graphs moving by fractional mean curvature. For this, we study the associated nonlocal quasilinear evolution equation satisfied by the family of graph functions. We establish, using an analytic semigroup approach, short time existence, uniqueness and optimal Hölder regularity in time and space of classical solutions of the nonlocal equation, depending on the regularity of the initial graph. The method also yields $C^{\infty}-$smoothness estimates of the evolving graphs for positive times.

Link: See the article

Authors: Nonlocal diffusion of smooth sets
Title: A. Attiogbe, E. H. A. Thiam and M. M. Fall.

Abstract: We consider normal velocity of smooth sets evolving by the $s-$fractional diffusion. We prove that for small time, the normal velocity of such sets is nearly proportional to the mean curvature of the boundary of the initial set for $s \in [\frac{1}{2}, 1)$ while, for $s \in (0, \frac{1}{2})$, it is nearly proportional to the fractional mean curvature of the initial set. Our results show that the motion by (fractional) mean curvature flow can be approximated by fractional heat diffusion and by a diffusion by means of harmonic extension of smooth sets.

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Work in progress