

Nonlocal interface evolution problems

(Dr. Nicola De Nitti, EPFL Lausanne)

We discuss existence and finite speed of propagation for the solutions to an initial-boundary value problem for a family of fractional thin-film equations in a bounded domain in \mathbb{R}^d . The nonlocal operator we consider is the spectral fractional Laplacian with Neumann boundary conditions. In the case of a "strong slippage" regime with "complete wetting" interfacial conditions, we prove local entropy estimates that entail finite speed of propagation of the support and a lower bound for the waiting time phenomenon. This talk is based on joint works with Stefano Lisini, Antonio Segatti, and Roman Tarasets.