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Accelerating propagation in a periodic functional differential equation

In this talk, I will report our recent research on the spreading properties of a class of nonlocal evolution equations with time periodic delay. We first establish fundamental solutions of integro-differential equations with periodic time-delay. In the case where the dispersal kernels are exponentially bounded, we then obtained the existence of spreading speed and its variational characterization. We focus on the case where the kinetic dynamics are of monostable type and the dispersal kernels are algebraically decaying. More precisely, we prove the non-existence of traveling wave solutions and show that the level sets of the solutions eventually locate in between two exponential functions of time.