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Traveling fronts in space-time periodic media

This talk is concerned with the existence of traveling fronts for the equation:

$$\partial_t u - \nabla \cdot (A(t, x) \nabla u) + q(t, x) \cdot \nabla u = f(t, x, u), \quad (1)$$

where the diffusion matrix A , the advection term q and the reaction term f are periodic in t and x . We will first discuss the notion of traveling fronts in such media. Then, we will explain how to prove the existence of some speeds c^* and c^{**} such that there exists a pulsating traveling front of speed c for all $c \geq c^{**}$ and that there exists no such front of speed $c < c^*$. Lastly, in the case of a KPP-type reaction term, we will get a nice characterization of the speed c^* and give some dependence relations between the speed and the coefficients.