Emmanuel Russ (Univ. Grenoble Alpes)

A minimization problem for the principal eigenvalue of the Laplacian with large drift

Let $\Omega \subset \mathbb{R}^d$ be a $C^2$ bounded domain and $L = \Delta + v \cdot \nabla$ on $\Omega$ under Dirichlet boundary condition, where $v$ is a bounded vector field on $\Omega$. We consider the minimal principal eigenvalue $\lambda_1$ and the related principal eigenfunction $\varphi$ in the class of drifts having a given, but large, pointwise upper bound, and prove asymptotic properties of $\lambda_1$ and $\varphi$. This is joint work with François Hamel and Luca Rossi.