G. Piscitelli

Dip. di Scienze Economiche, Giuridiche, Informatiche e Motorie, Universita degli Studi di Napoli Parthenope, Nola, Italy

`gianpaolo.piscitelli@uniparthenope.it`

On the Second Anisotropic Cheeger Constant and Related Questions

We study the behavior of the second eigenfunction of the anisotropic p-Laplace operator

$$-\mathcal{Q}_p u := -\operatorname{div}\left(F^{p-1}(\nabla u) F_\xi(\nabla u)\right),$$

as $p \to 1^+$, where F is a suitable smooth norm of $\mathbb{R}^n$. Moreover, for any regular set Ω, we define the second anisotropic Cheeger constant as

$$h_{2,F}(\Omega) := \inf\left\{\max\left\{\frac{P_F(E_1)}{|E_1|}, \frac{P_F(E_2)}{|E_2|}\right\}, \ E_1, E_2 \subset \Omega, E_1 \cap E_2 = \emptyset\right\},$$

where $P_F(E)$ is the anisotropic perimeter of E, and study the connection with the second eigenvalue of the anisotropic p-Laplacian. Finally, we study the twisted anisotropic q-Cheeger constant with a volume constraint.