Sharp estimates on the first Dirichlet eigenvalue of nonlinear elliptic operators via maximum principle

Giuseppina di Blasio*

We discuss about optimal lower and upper bounds for functionals involving the first Dirichlet eigenvalue $\lambda_F(p,\Omega)$ of the anisotropic p-Laplacian, $1 < p < +\infty$. Our aim is to enhance how, by means of the $\mathcal{P}$-function method, it is possible to get several sharp estimates for $\lambda_F(p,\Omega)$ in terms of several geometric quantities associated to the domain. The $\mathcal{P}$-function method is based on a maximum principle for a suitable function involving the eigenfunction and its gradient. This is a joint work with F. Della Pietra and N. Gavitone.

*Università degli Studi della Campania "Luigi Vanvitelli", viale Lincoln, 5 81100 Caserta, Italy. Email: giuseppina.diblasio@unicampania.it