# ON THE HARDY CONSTANT OF NON-CONVEX PLANAR DOMAINS

ACHILLES TERTIKAS


## Abstract

The Hardy constant of a simply connected domain $\Omega \subset \mathbb{R}^2$ is the best constant for the inequality

$$\int_\Omega |\nabla u|^2 dx \geq c \int_\Omega \frac{u^2}{\mathrm{dist}(x,\partial\Omega)^2}\, dx\ , \qquad u \in C_c^\infty(\Omega).$$

The Hardy constant of a convex domain is 1/4. In general the Hardy constant depends on the geometry of the domain $\Omega$.

After the work of Ancona where the universal lower bound 1/16 was obtained, there has been a substantial interest on computing or estimating the Hardy constant of planar domains.

Our interest in this talk is to determine the Hardy constant of an arbitrary quadrilateral in the plane. In particular we show that the Hardy constant is the same as that of a certain infinite sectorial region which has been studied by E.B. Davies.

This talk will be based on a recent joint work with G. Barbatis (Univ. Athens).