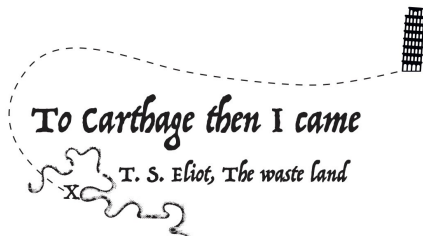


Giovanni Alberti
Università di Pisa

Thursday 19th May
12:00 (Tunis time – GMT+1, UTC+1)



Dividing a set in half

In this talk I will describe a work in progress with Alan Chang (Princeton University) on the following elementary problem of isoperimetric type:

Given a set E in \mathbb{R}^d with finite volume, is it possible to find an hyperplane P that cuts E in two parts with equal volume, so that the area of the cut (that is, the intersection of P and E) is of order $(\text{vol}(E))^{1-1/d}$?

We prove that this question, even in a stronger form, has positive answer if the dimension d is 3 or higher. Interestingly enough, our proof breaks down completely in dimension $d=2$, and we do not know the answer in this case. However, the answer is positive if we allow cuts that are not exactly planar, but close to planar.