Title: How to obtain nice PDE properties under poor geometries, via harmonic analysis

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(Tentative) abstract:

How irregular can the boundary of a domain be if we still want nice PDE properties to hold? To answer this (apparently geometric + PDE) question, many authors have shown in the last 50 years that Harmonic Analysis plays a crucial role if we want to consider the most irregular domains as possible.

In this talk, we will show some of the interactions that take place between these 3 disciplines to study properties of elliptic PDE in domains which are on the edge of the most general possible, and also some recent extensions to parabolic PDE.

This is based on joint work with M. Cao and J.M. Martell.

*** Note: I say that this is a tentative abstract because in the talk, I would like to merge the work I did with M. Cao and J.M. Martell with another ongoing project (that hopefully/probably we will finish before summer) that I have with other collaborators. And in such case, I would also like to mention my other collaborators, of course.