

A perimeter to capture differences in the micro- and macro- (fractal) structure of a space

Patricia Alonso-Ruiz (Uni Jena)

AG Stochastische Geometrie, 23. Mai 2025, 9.45 Uhr, Raum 2.058

Abstract: Imagine a material whose structure significantly differs depending on whether you work with it at a small scale or at a large scale, and that shows fractal-like features at least on one scale. You now take a thin slice of this material and wish to measure the perimeter of the slice in a way that “detects” the correct scale to use. How could you do that?

Taking as prototype a Sierpinski carpet cable system, the present talk addresses this question and offers some ideas based on a beautiful connection between Brownian motion and functions of bounded variation, now extended to (fractal) settings with variable scales. Results are joint work with Fabrice Baudoin.