Sojourn time dimensions of fractional Brownian motion

Lara Daw (Université du Luxembourg)

Time **Friday, Sept 20, 2019 at 14:00**
Place **Campus Belval, MNO 5A (fifth floor)**

Studying the geometric properties of the sample paths of a fractional Brownian motion $(B_t)_{t\geq 0}$ has many approaches. One of them is describing the (asymptotic) proportion of time spent by the process in a given region. Sojourn times have been studied by many authors and play a key role in understanding various features of the paths of stochastic processes, especially those of fractional Brownian motion. After introducing some notions related to fractional Brownian motion and sojourn sets associated to it, I will introduce the microscopic Hausdorff dimension and two different densities. Computing the macroscopic Hausdorff dimension, logarithmic and macroscopic densities of the sojourn sets will give us some geometric properties of the path of fractional Brownian motion. I will also give a uniform macroscopic dimension result for the fractional Brownian level sets.