Ramon Van Handel

Chaining, interpolation, and convexity

A significant achievement of modern probability theory is the development of sharp connections between the boundedness of random processes and the geometry of the underlying index set. In particular, the generic chaining method of Talagrand provides in principle a sharp understanding of the suprema of Gaussian processes. The multiscale geometric structure that arises in this method is however notoriously difficult to control in any given situation. In this talk, I will exhibit a surprisingly simple but very general geometric construction, inspired by real interpolation of Banach spaces, that is readily amenable to explicit computations and that explains the behavior of Gaussian processes in various interesting situations where classical entropy methods are known to fail.