



## About the inner structure of max-stable processes

Mathieu Ribatet<sup>1</sup>

<sup>1</sup> Ecole Centrale de Nantes

### **Abstract:**

Max-stable processes play a major role in the stochastic modelling of spatial extremes, such as heatwaves, extreme rainfall, as they arise as the only (non trivial) limiting process for point wise maxima. In this talk we will give a broad overview about the main specificities of max-stable processes. More precisely we will first recall its well-known spectral characterization and see why it leads to difficulties in deriving likelihood based estimates or (conditional) simulations. Finally we will put emphasis on the inner structure of these processes that is mainly driven by a random partition. We will see how it is possible to derive spatial extreme dependence summary statistics from such random partitions, e.g., extremal concurrence probabilities.

### **Keywords:**

Max-stable processes; Extreme value theory; Geostatistics; Environmental applications;