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Tail asymptotics and excursion sets for infinitely divisible random fields

Joint with Eva B. Vedel Jensen

A continuous, infinitely divisible d -dimensional random field given as an integral of a kernel function with respect to a Lévy basis with convolution equivalent Lévy measure is considered. For a large class of such random fields the asymptotic probability that the supremum of the field exceeds the level x is computed as x tends to infinity. The main result is that the asymptotic probability is equivalent to the right tail of the underlying Lévy measure. Furthermore the asymptotic behaviour of the probability that an excursion set contains e.g. a ball of a given size is studied. Also this probability is asymptotically described by the right tail of the Lévy measure.