

ASYMPTOTIC BEHAVIOUR OF FIRST PASSAGE TIME DISTRIBUTIONS FOR SUBORDINATORS

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We will speak about local estimates for the first passage time of a subordinator under the assumption that it belongs to the Feller class, either at zero or infinity, having as a particular case the subordinators which are in the domain of attraction of a stable distribution, either at zero or infinity. To derive these results we will first provide uniform local estimates for the one dimensional distribution of such a subordinator, which sharpen those obtained by Jain and Pruitt in 1987. In the particular case of a subordinator in the domain of attraction of a stable distribution our results are the analogue of the results obtained by Doney and R. for non-monotone Lévy processes, and which will be also recalled in the talk. For subordinators an approach different to that used for non-monotone Lévy processes is necessary because the excursion techniques are not available and also because typically in the non-monotone case the tail distribution of the first passage time has polynomial decrease, while in the subordinator case it is exponential.

This talk is based in the works

REFERENCES

- [1] R. A. Doney and V. Rivero : Asymptotic behaviour of first passage time distributions for Lévy processes. To appear in *Probability Theory and Related Fields*, (2013). <http://arxiv.org/abs/1107.4415>
- [2] R. A. Doney and V. Rivero : Asymptotic behaviour of first passage time distributions for subordinators. Submitted (2013). <http://arxiv.org/abs/1306.1503>