

# MEROMORPHIC LÉVY PROCESSES AND SOME APPLICATIONS

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**Theorem 1.** *Lévy processes can be seen as the natural generalisation of the Brownian Motion and due to the existence of jumps they are able to describe probabilistic “real world problems ” in a much better way.*

*In our talk we shortly explain the idea of stochastic and especially of Lévy processes. Furthermore, we introduce the concept of “Canadisation” , cf. [1] and present the link with the new large class of “Meromorphic Lévy processes”, cf. Kuznetsov et al. [4] (see also [3]). Their main appeal is an explicit expression as a (possibly infinite) mixture of exponentials for the law of the Lévy process evaluated at a random time. With its help we are able to tackle some questions in finance, insurance and optimal stopping in a different way (cf. Kleinert et al [2]).*

## REFERENCES

- [1] Carr, P. (1998). Randomization and the American Put. *Rev. Fin. Studies* **11**, 597-626
- [2] Kleinert, F. and van Schaik, K. (2013). A variation of the Canadisation algorithm for the pricing of American options driven by Lévy processes. *Submitted*, arXiv:1304.4534.
- [3] Kuznetsov, A. (2010). Wiener-Hopf factorization and distribution of extrema for a family of Lévy processes. *Ann. Appl. Probab.* **20**, 1801-1830
- [4] Kuznetsov, A., Kyprianou, A. E. and Pardo, J. C. (2012). Meromorphic Lévy processes and their fluctuation identities. *Ann. Appl. Probab.* **22**, 1101-1135