

The Convex Minorant of the Cauchy Process

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Abstract

We determine the law of the convex minorant $(M_s, \sin [0,1])$ of a real-valued Cauchy process on the unit time interval, in terms of the gamma process. In particular, this enables us to deduce that the paths of M have a continuous derivative, and that the support of the Stieltjes measure dM' has logarithmic dimension one.

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Bibliography

1. R. Bass. Markov processes and convex minorants. *Séminaire de Probabilités XVIII*: 28--41, 1984. [Math. Review 86d:60086](#).
2. J. Bertoin. *Lévy Processes*. Cambridge University Press, 1996. [Math. Review 98e:60117](#).
3. J. Bertoin. Renewal theory for embedded regenerative sets. *Ann. Probab.*, 27: 1523--1535, 1999. Math. Review number not available.
4. J. Bertoin and M. E. Caballero. On the rate of growth of subordinators with slowly varying Laplace exponent. *Séminaire de Probabilités XXIX*: 125--132, 1995. [Math. Review 98g:60134](#).
5. J. Bertoin and J. Pitman. Two coalescents derived from the ranges of stable subordinators. To appear in *Electronic Journal of Probability*. Math. Review number not available.
6. E. Cinlar. Sunset over Brownistan. *Stochastic Process. Appl.* 40: 45-53, 1992. [Math. Review 17,273d](#).
7. M. Cranston, P. Hsu and P. March. Smoothness of the convex hull of planar Brownian motion. *Ann. Probab.* 17: 144--150, 1989. [Math. Review 89m:60190](#).
8. S. N. Evans. On the Hausdorff dimension of Brownian cone points. *Math. Proc. Camb. Philos. Soc.* 98: 343--353, 1985. [Math. Review 86j:60185](#).
9. B. E. Fristedt and W. E. Pruitt. Lower functions for increasing random walks and subordinators. *Z. Wahrscheinlichkeitstheorie verw. Gebiete* 18: 167--182, 1971. [Math. Review 45 #1250](#).
10. I. I. Gihman and A. V. Skorohod. *The Theory of Stochastic Processes II*. Springer, Berlin, 1975. [Math. Review 51 #11656](#).
11. P. Groeneboom. The concave majorant of Brownian motion. *Ann. Probab.* 11: 1016--1027, 1983. [Math. Review 85h:60119](#).
12. M. Nagasawa and H. Tanaka. Concave majorants of Lévy processes. Preprint (1999). Math. Review number not available.
13. J. W. Pitman. Remarks on the convex minorant of Brownian motion. In: *Seminar on Stochastic Processes* (Evanston, 1982), pp. 219--227, Progr. Probab. Statist., 5, Birkhäuser Boston, Boston, Mass., 1983. [Math. Review 85f:60119](#).

