

## Cauchy quasi-likelihood in SDE estimation

Hiroki Masuda, Kyushu University

### Abstract

We consider parametric estimation of stochastic differential equations (SDE) driven by a pure-jump Levy process with positive Blumenthal-Gettoor index, when the process is discretely observed at high frequency. We propose a non-Gaussian quasi-likelihood estimation procedure based on the small-time stable approximation of the transition probability. This contrast function leads to an estimator exhibiting an essentially different asymptotic behavior from that of the conventional Gaussian quasi-likelihood estimator. Of primary interest would be the Cauchy quasi-likelihood function, which is fully explicit.