

## Local asymptotic mixed normality for discretely observed non-recurrent Ornstein–Uhlenbeck processes

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Received: 26 May 2009 / Revised: 5 November 2009 / Published online: 14 July 2010  
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**Abstract** Consider non-recurrent Ornstein–Uhlenbeck processes with unknown drift and diffusion parameters. Our purpose is to estimate the parameters jointly from discrete observations with a certain asymptotics. We show that the likelihood ratio of the discrete samples has the uniform LAMN property, and that some kind of approximated MLE is asymptotically optimal in a sense of asymptotic maximum concentration probability. The estimator is also asymptotically efficient in ergodic cases.

**Keywords** Ornstein–Uhlenbeck processes · Non-recurrency · ULAMN property · Discrete observations · Joint estimation · Asymptotic optimality