

# Estimation of parameters for discretely observed diffusion processes with a variety of rates for information

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**Abstract** A specific form of stochastic differential equation with unknown parameters are considered. We do not necessarily assume ergodicity or recurrence, and any moment conditions for the true process, but some tightness conditions for an information-like quantity. The interest is to estimate the parameters from discrete observations the step size of which tends to zero. Consistency and the rate of convergence of proposed estimators are presented. The rate is deduced naturally from the rate for the information-like quantities.

**Keywords** Parametric inference · Non-ergodic diffusions · Discrete observations · Consistency · Rates of convergence · Normalized information