

**Kessler, Mathieu; Sørensen, Michael**

**Estimating equations based on eigenfunctions for a discretely observed diffusion process.**

(English) [Zbl 0980.62074](#)

*Bernoulli* 5, No. 2, 299-314 (1999).

Summary: A new type of martingale estimating functions is proposed for inference about classes of diffusion processes based on discrete-time observations. These estimating functions can be tailored to a particular class of diffusion processes by utilizing a martingale property of the eigenfunctions of the generators of the diffusions.

Optimal estimating functions in the sense of *V.P. Godambe* and *C.C. Heyde* [*Int. Stat. Rev.* 55, 231-244 (1987; [Zbl 0671.62007](#))] are found. Inference based on these is invariant under transformations of data. A result on consistency and asymptotic normality of the estimators is given for ergodic diffusions. The theory is illustrated by several examples and by a simulation study.

**MSC:**

- [62M05](#) Markov processes: estimation; hidden Markov models
- [60J60](#) Diffusion processes
- [60H10](#) Stochastic ordinary differential equations (aspects of stochastic analysis)
- [62F12](#) Asymptotic properties of parametric estimators

Cited in **4** Reviews  
Cited in **56** Documents

**Keywords:**

optimal estimating functions; quaslikelihood; generators

**Full Text:** [DOI](#)