



## Efficient estimation for stochastic differential equations with high frequency data

Michael Sørensen\*

Department of Mathematical Sciences, University of Copenhagen, Copenhagen, Denmark -  
michael@math.ku.dk

Estimation for stochastic differential equation models with high frequency data by means of approximate martingale estimating functions will be discussed with particular focus on rate optimality and efficiency. Generally, estimators of parameters in the diffusion coefficient converge faster than estimators of drift parameters. The estimating function approach covers most parametric estimators that have been proposed in the literature. Simple and easily checked criteria for rate optimality and efficiency will be given. A bounded as well as an expanding observation interval will be considered, and it will be discussed how the presence of jumps influences the efficiency of the estimation. For models without jumps Godambe-Heyde optimal estimating functions are efficient under weak conditions, but this is not generally the case in the presence of jumps.

**Keywords:** Approximate martingale estimating functions, effect of jumps, optimal estimating function, optimal rate of convergence