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# On parameter estimation for cusp-type signals

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**Abstract** We consider the problem of parameter estimation by continuous time observations of a deterministic signal in white Gaussian noise. It is supposed that the signal has a cusp-type singularity. The properties of the maximum-likelihood and Bayesian estimators are described in the asymptotics of small noise. Special attention is paid to the problem of parameter estimation in the situation of misspecification in regularity, i.e., when the statistician supposes that the observed signal has this singularity, but the real signal is smooth. The rate and the asymptotic distribution of the maximum-likelihood estimator in this situation are described.

**Keywords** Parameter estimation · Cusp-type singularity · Small noise · Misspecification

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