On parameter estimation for threshold models

Yury Kutoyants, Université du Maine

Abstract

We consider several several problems of threshold parameter estimation (ϑ) for the discrete

$$X_{j+1} = \rho_1 \, X_j \, 1_{\{|X_j| < \vartheta\}} + \rho_2 \, X_j \, 1_{\{|X_j| \geq \vartheta\}} + \varepsilon_{j+1}$$

and continuous time

$$\mathrm{d}X_t = -\rho_1 \, X_t \, 1_{\{|X_t| < \vartheta\}} \mathrm{d}t - \rho_2 \, X_t \, 1_{\{|X_t| \geq \vartheta\}} \mathrm{d}t + \mathrm{d}W_t$$

models. We decribe the asymptotic behavior of the estimators and present the results of simulation. (The discrete time part is the joint work with N.H. Chen)