PROBABILITY
AND
MATHEMATICAL STATISTICS
Vol. 22, Fasc. 2 (2002), pp. 355–379

# ADAPTIVE ESTIMATION OF HAZARD FUNCTIONS

**Sebastian Döhler**
**Ludger Rüschendorf**

*Abstract:* In this paper we obtain convergence rates for sieved maximum-likelihood estimators of the log-hazard function in a censoring model. We also establish convergence results for an adaptive version of the estimator based on the method of structural risk-minimization. Applications are discussed to tensor product spline estimators as well as to neural net and radial basis function sieves. We obtain simplified bounds in comparison to the known literature. This allows us to derive several new classes of estimators and to obtain improved estimation rates. Our results extend to a more general class of estimation problems and estimation methods (minimum contrast estimators).

**1991 AMS Mathematics Subject Classification:** Primary: -; Secondary: -;

**Key words and phrases:** Adaptive estimation, sieved maximum likelihood, neural nets, structural risk minimization, hazard functions.