

12. Oktober 2005

# Einladung

Im Stochastik-Kolloquium spricht

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über das Thema

**Model selection and examples: histogram construction, non-parametric regression**

Der Vortrag findet statt am

**Mittwoch, 02. November 2005 um 11:15 Uhr**

im

**Seminarraum der Stochastik, Maschmühlenweg 8 - 10**

Es laden ein: die Dozenten des Instituts für Mathematische Stochastik

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## **Abstract.**

The construction of a histogram from real-valued data is a well-known and 'simple' task. We put this task, as well as other ones such as nonparametric regression, into the general framework of model selection, considering criteria such as AIC, BIC, MDL, Cross-validation, Hellinger-distance as well as new criteria. It will be shown that there is no overall best procedure for histogram construction nor for other tasks. The results of several simulation studies will be presented, showing merits and deficiencies of selected methods.

## References

- Birgé, L. and Rozenholc, Y. (2002). How many bins should be put in a regular histogram? Preprint. Laboratoire de Probabilités et Modèles Aléatoires, Université Paris IV.
- Davies, P. L. and Kovac, A. (2001). Local extremes, runs, strings and multiresolution (with discussion). *Ann. Stat.* 29, 1 - 65.
- Davies, P. L. and Kovac, A. (2004). Densities, spectral densities and modality. *Ann. Stat.* 32, 1093 - 1136.
- Hall, P. and Hannan, E. J. (1988). On stochastic complexity and nonparametric density estimation. *Biometrika* 75, 705 - 714.

## Keywords

DENSITY ESTIMATION, MODEL SELECTION, REGRESSION, PENALIZED LIKELIHOOD, REGULAR HISTOGRAM, TAUTSTRING