

UNIVERSITY OF GEORGIA  
DEPARTMENT OF STATISTICS

# *Colloquium*

## **On Determination of Linear Components in Additive Models**

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Additive models have been widely used in nonparametric regression, mainly due to their ability to avoid the problem of the "curse of dimensionality". When some of the additive components are linear, the model can be further simplified and higher convergence rates can be achieved for the estimation of these linear components. In this paper, we propose a testing procedure for the determination of linear components in nonparametric additive models. We adopt the penalized spline approach for modelling the nonparametric functions, and the test is a sort of Chi-square test based on finite order penalized spline estimators. The limiting behavior of the test statistic is investigated. To obtain the critical values for finite sample problems, we use resampling techniques to establish a bootstrap test. The performance of the proposed tests is studied through simulation experiments and a real-data example.

**Thursday October 28, 2010**

3:30 P.M., Room 306  
Statistics Building  
University of Georgia  
Athens, GA 30602

**Refreshments following the talk at 4:30 P.M. in room 230 (The Cohen Room)**