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## **HeiKaMEtrics - Seminar**

**joint Heidelberg, Karlsruhe and Mannheim  
research seminar in Econometrics**

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### **Factorisable Sparse Tail Event Curves**

**Prof. Dr. Wolfgang K. Härdle**  
Humboldt-Universität zu Berlin

**Tuesday, March 22, 2016, 10:00 - 11:00h**  
**Building 20.14, Room 103.1**

**Abstract:**

In this paper, we propose a multivariate quantile regression method which enables localized analysis on conditional quantiles and global comovement analysis on conditional ranges for high-dimensional data. The proposed method, hereafter referred to as Factorisable Sparse Tail Event Curves, or FASTEC for short, exploits the potential factor structure of multivariate conditional quantiles through nuclear norm regularization and is particularly suitable for dealing with extreme quantiles. We study both theoretical properties and computational aspects of the estimating procedure for FASTEC. In particular, we derive nonasymptotic oracle bounds for the estimation error, and develop an efficient proximal gradient algorithm for the non-smooth optimization problem incurred in our estimating procedure. Merits of the proposed methodology are further demonstrated through applications to Conditional Autoregressive Value-at-Risk (CAViaR) (Engle and Manganelli; 2004), and a Chinese temperature dataset.