

Otto-von-Guericke-Universität Magdeburg  
Fakultät für Mathematik

Auf Einladung des Institutes für Mathematische Stochastik spricht

Frau Prof. Dr. Melanie Schienle  
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über das Thema

## **Determination of Vector Error Correction Models in Moderate and High Dimensions**

**Ort:** Otto-von-Guericke-Universität, G18-401

**Zeit:** 23. Januar 2020, 13:15 Uhr

Zu diesem Vortrag sind alle Interessierten herzlich eingeladen.

### **Abstract:**

We provide a shrinkage type methodology which allows for > simultaneous model selection and estimation of vector error > correction models (VECM) when the dimension is large and even > increasing with sample size. Model determination is treated as a > joint selection problem of cointegrating rank and autoregressive > lags under respective practically valid sparsity assumptions. We > show consistency of the selection mechanism by the resulting > Lasso-VECM estimator under very general assumptions on dimension, > rank and error terms. Moreover, with computational complexity of a > linear programming problem only, the procedure remains > computationally tractable in high dimensions. For the subcase of > large but finite dimensions, we can modify and tailor the procedure > with elementwise selection consistency simplifying many technical > assumptions for practical use. We demonstrate the effectiveness of > the proposed techniques in simulations. Moreover, our methodology > yields novel empirical insights for a system of recent sovereign and > bank CDS after the financial crisis. For a system of FX-rates, we > also show that the tailored procedure for moderate dimensions > provides economically interesting results with forecast advantages.