High-Dimensional
Non-Stationary Time Series Analysis

# IRTG 1792 Short Course

## Matthias Fengler

*Matthias Fengler is Professor of Quantitative Economic Methods at the University of St. Gallen, Switzerland. His main fields of research cover Empirical finance as well as Financial econometrics and statistics.*

### Econometric Modeling of Option Price and Implied Volatility Data

This class considers econometric methods to model option price and implied volatility data. Starting point is the Black-Scholes implied volatility surface (IVS). First, I will review the recent theoretical developments on IVS asymptotics both in strike and expiry dimension and discuss no-arbitrage relationships. This will be followed by a variety of modeling techniques of a call price surface, state price densities, and the IVS ranging from parametric approximate and constructive methods, to non and semiparametric techniques (smoothing splines, B-splines, semiparametric factor models). Finally, I will cover the theory of local volatility and the Dupire formula as well as estimation of local volatility.

01.10.2014 | 10:00-15:00

02.10.2014 | 09:00-15:00

Room 401, SPA1

***http://irtg1792.hu-berlin.de***