

# Markus Riedle

## Ornstein-Uhlenbeck processes driven by cylindrical Lévy processes

In this talk we consider the stochastic Cauchy problem driven by a cylindrical Lévy process. Here, a cylindrical Lévy process is understood in the classical framework of cylindrical random variables and cylindrical measures, and thus, it can be considered as a natural generalisation of cylindrical Wiener processes or Gaussian space-time white noises.

The first part of the talk is devoted to introduce cylindrical Lévy processes and their characteristics and to present some examples. We develop a stochastic integration theory for deterministic, operator-valued integrands with respect to cylindrical Lévy processes and to provide necessary and sufficient conditions for a function to be integrable. In the second part, we apply the developed theory to show that the Ornstein-Uhlenbeck process is the weak solution of the stochastic Cauchy problem. For this purpose, we have to derive a stochastic version of Fubini's result without requiring any condition on the moments. The talk finishes with discussing some path regularities of the Ornstein-Uhlenbeck process and presenting some open problems.

Some parts of this talks are based on a joint work with Umesh Kumar.