Berlin Mathematical School

Descriptions of available dissertation projects in MATH+

AA4-2: Optimal control in energy markets using rough analysis and deep networks

Energy markets play a complex and pivotal role in our economy. Project goals include development of efficient methods for modeling energy price processes and methods for solving stochastic control and decision problems based on (rough path) signature based regression, dual methods for randomized stochastic optimal control, Bayesian reinforcement optimal control and data driven dynamics in the context of rough volatility. (The successful candidate will contribute to a selection of these goals.)

Requirements:

- Strong background in stochastic analysis.
- Interest in statistics, machine learning, and data-driven modeling

BMS Research Training Area 3

Faculty: Christian Bayer, Peter Friz, John Schoenmakers, Vladimir Spokoiny