





High Dimensional Nonstationary Time Series IRTG 1792 Short Course

Holger Dette Testing Relevant Hypothesis for Functional Data

Statistical inference for functional data has found considerable interest, and a well developed theory has been established in the last 20 years. We will discuss several new aspects of the field arising from concrete applications.

One part of the lectures is focuses on functional data analysis in Banach spaces (in particular, in the space of continuous functions equipped with a sup-norm and reflect the fact that the commonly used L2-theory might identify objects as similar even if they are visually very different.

The second part of the lectures addresses the problem of testing relevant hypotheses, which are - in many applications - more reasonable than testing the classical hypotheses. For example, in the two-sample problem it might be more reasonable to test the hypothesis that the distance between the two mean functions is smaller than a certain threshold than testing the hypothesis that the mean functions exactly coincide (which is often known to be not true). We provide a general approach to this problem based on self-normalization explaining it by numerous examples.

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