Course Description:

String theory is the leading candidate for a consistent, i.e. ultra-violet finite, quantum theory of particle interactions and gravity. It has revolutionised our understanding of quantum field theory, gravitational physics and the very nature of spacetime. This course is the continuation of the course Introduction to String Theory taught in summer term 2023 and discusses some advanced topics in string theory, with a focus on a spacetime rather than a worldsheet perspective. This includes some relevant aspects of quantum field theory such as anomalies or, time permitting, instantons, which are usually not covered in the QFT 2 course for reasons of time.

Topics include:
- The heterotic string
- 10d effective actions, Green-Schwarz mechanism and anomalies
- D-branes as BPS objects
- String duality and non-perturbative string theory
- String compactifications
- AdS/CFT correspondence (if time permits)

Prerequisites:

- Quantum Field Theory 1 and 2
- String Theory 1 (as taught e.g. in summer term 2023)

Literature:


Date and Place:

Wed 08:30–10:00, and 10:15-11:00, SR 2, Building 2a, Bahrenfeld

Starting on:

October 17th, 2023