

Ilka Brunner (LMU München)
Nils Carqueville (Universität Wien)
Hans Jockers (JGU Mainz)
Peter Mayr (LMU München)
Simone Noja (Universität Heidelberg)
Ivo Sachs (LMU München)
Johannes Walcher (Universität Heidelberg)

JOHANNES GUTENBERG
UNIVERSITÄT MAINZ



RIND seminar on Mathematical Physics and String Theory

Oct. 31, 2022 at 4 p.m. c.t.
None

Joint seminar series on Mathematical Physics and String Theory

Lorenz Eberhardt
IAS

Unitarity cuts of the worldsheet

I will revisit string one-loop amplitudes in this talk. After reviewing the basics, I will explain how Witten's ϵ prescription gives a manifestly convergent representation of the amplitude. I will then consider the imaginary part of the amplitude and show directly that it satisfies the standard field theory cutting rules. This leads to an exact representation of the imaginary part of the amplitude. I will also discuss physical properties of the imaginary part such as the singularity structure of the amplitude, its Regge and high energy fixed-angle behaviour and low-spin dominance. Finally, I will tease how Rademacher's contour can be used to evaluate the full one-loop open string amplitude exactly in terms of a convergent infinite sum.

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