

Theorie-Palaver

Jan. 9, 2024 at 2 p.m.
Lorentz room (Staudingerweg 7, 5th floor)

Zeno Capatti
U. Bern

Threshold singularities of Feynman diagrams and their cancellation in collider cross-sections

In this talk, I will review the main aspects of three-dimensional approaches to the computation of Feynman diagrams and of the Local Unitarity formalism. I will start by discussing the Cross-Free Family representation, which allows for a systematic analysis of the singularities of Feynman diagrams. I will then introduce the Local Unitarity framework, in which interference diagrams are combined, through a generally-applicable mapping of the phase-space measure, to give locally finite cross-sections. Finally, I will discuss the extension of the Local Unitarity formalism to processes with initial state singularities, which will allow me to discuss the role of spectator particles and higher-multiplicity initial-state partonic configurations in the cancellation and factorisation of singularities.