Particle Physics
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I N V I T A T I O N

as part of the Particle Physics Seminar

to the talk by

Yao MA

(ETH Zurich)

on

"Expansion by Regions for Feynman integrals: From Wide-angle to Spacelike Collinear Kinematics"

Abstract:
The expansion by regions is a powerful technique for analyzing the asymptotic behavior of Feynman integrals, where the first critical step is identifying all relevant regions. In Euclidean kinematics, this can be systematically formulated as an "expansion by subgraphs" procedure. However, in Minkowski kinematics, region identification becomes nontrivial due to infrared singularities and non-Euclidean causal structure.
In this talk, we explore asymptotic expansions for massless scattering processes across both wide-angle and small-angle kinematics. We review recent progress in region identification and show how the expansion-by-subgraphs technique extends to these scenarios. A key result is that a "spacelike collinearization" procedure—transitioning systematically from wide-angle to collinear kinematics—reveals Glauber modes as emergent from the Landshoff scattering picture. We conclude by discussing how this approach clarifies infrared singularities in perturbative QCD, particularly in regimes where Glauber modes challenge factorization.

Time: **Friday, 28 March 2025, 2:00 p.m.**
Location: **Seminar room 3158, 1st floor Boltzmanngasse Zubau**
1090 Vienna, Boltzmanngasse 5

Join Zoom Meeting - Meeting ID: 933 4269 3866 Passcode: 185096
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