Contribution ID: **28** Contribution code: **GPA22-11** Type: **not specified**

On the resummation of non-global and clustering logarithms for jet shapes beyond the leading log accuracy

Thursday 8 December 2022 13:00 (30 minutes)

The azimuthal decorrelation ΔΦ for dijet production in e+e− annihilation, is a typical example of a jet shape distribution that promise to provide valuable information on perturbative and non-perturbative QCD dynamics. Where the jets are nearly back to back, the observable in question is sensitive to soft emissions, giving rise to large single logarithms. Employing the four vector recombination scheme (E− scheme), used at the Tevatron, the observale at hand is non-global. One of the main complications that arise in such observables particularly at next to leading logarithmic (NLL) accuracy, are twofold. On the one side, non-global logarithms will arise in the jet shape distribution when the jets are defined using both the kt and anti−kt clustering procedures. On the other side new logarithmic contributions, clustering logs in the independent emission piece will show up at the said logarithmic accuracy, when the kt clustering algorithm is applied. In this work we shed light on these very contributions for the aforementioned observable and we analytically compute the full R dependence of non-global and clustering logarithms for various jet algorithms at fourth order in the perturbative expansion. Employing the small jet radius approximation, we also perform an analytical fixed order calculation of non-global logarithms with kt clustering algorithm up to two-loops in the coupling.

Author: BENSLAMA, Hana (Batna1)

Co-author: Prof. DELENDA, Yazid (university of Batna1)

Presenter: BENSLAMA, Hana (Batna1)