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## Analysis of singularities and the four-dimensional representation $\succ$ of physical observables within the LTD formalism

*Thursday, July 11, 2019 5:50 PM (20 minutes)*

In the past years, we have been developing a novel technique, called Four-Dimensional Unsubtraction (FDU) which aims to obtain purely four-dimensional representations of the matrix elements contributing to physical observables. In this talk, we describe the application of the loop-tree duality (LTD) theorem to represent loop amplitudes in terms of tree-level like objects, focusing on the origin of possible singularities of scattering amplitudes. In particular, we analyse the regions responsible of infrared and threshold singularities. With this information, we aim to extend the FDU formalism to NNLO and beyond.

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