

Scalars 2023

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Thermal regularization of t-channel singularities of scattering processes

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Content :

In this talk, I will discuss the so-called t-channel singularities that may occur when a given t-channel scattering process is mediated by a massive, stable particle on its mass shell.

After providing conditions for the singularity to occur and presenting several examples of SM and BSM processes afflicted by the issue, I will describe a regularization method based on thermal field theory.

Taking into account interactions between the t-channel mediator and the surrounding gas of particles allows to assign an effective decay width to the mediator. Consequently, the singularity can be regularized using a resummed propagator.

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