

Flavor Physics workshop 2022 (FPWS2022)

Contribution ID : 53

Mediator decays at the threshold

Tuesday 08 Nov 2022 at 20:30 (01h30')

Content :

We study decay processes of mediator particles, which are predicted in the light dark matter scenario, especially for the case which their mass lie near the threshold region, namely, the sum of the mass of the final state particles. As an example, we consider a vector mediator particle whose mass is around twice as the muon or the bottom quark mass and develop a method to deal with the threshold singularity of its decay process quantitatively. We found that for the mass of the mediator being above the threshold the decay width is enhanced by the so-called Sommerfeld effect, while for below the threshold the decay width is also enhanced due to the mixing between the mediator and the bound states of the final state particles.

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