

A closer look to the sgoldstino interpretation of the diphoton excess

Wednesday 1 June 2016 17:50 (20 minutes)

We revisit the sgoldstino interpretation of the diphoton excess in the context of gauge mediation: we show that the interpretation is viable in a thin, near critical region of the parameter space. This regime gives rise to drastic departures from the standard gauge mediation picture. While the fermion messengers lie in the 10-100 TeV range, some scalar messengers are significantly lighter and are responsible for the sgoldstino production and decay. Their effective coupling to the sgoldstino is correspondingly enhanced, and a non-perturbative regime is triggered when light and heavy messenger masses differ by a factor ~ 4 .

Summary

We revisit the sgoldstino interpretation of the diphoton excess in the context of gauge mediation: we show that the interpretation is viable in a thin, near critical region of the parameter space. This regime gives rise to drastic departures from the standard gauge mediation picture. While the fermion messengers lie in the 10-100 TeV range, some scalar messengers are significantly lighter and are responsible for the sgoldstino production and decay. Their effective coupling to the sgoldstino is correspondingly enhanced, and a non-perturbative regime is triggered when light and heavy messenger masses differ by a factor ~ 4 .

Author: BARATELLA, Pietro (SISSA Trieste)

Presenter: BARATELLA, Pietro (SISSA Trieste)

Session Classification: BSM + DM