

long-lived particle search

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The ForwArd Search ExpeRiment (FASER), is a recently installed detector at the LHC that can detect light, long lived particles. In this work we study the prospect of detecting light CP-even and CP-odd scalars at the FASER. We develop the general formalism for the scalar production and decay from mesons at LHC, given modified couplings of the scalars to the SM particles, as well as summarizing the relevant GeV-scale experiment constraints. We then analyze the reaches of light scalars in the large $\tan\beta$ region of the Type-I 2HDM, in which a light scalar with relatively long life time could be accommodated.

Paper info

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