

Light scalars beyond the SM: collider searches and astrophysical constraints

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A light CP-even scalar is very common in the beyond SM physics. It can be searched at the high-energy colliders or high-intensity experiments via long-lived particles or flavor signals, for instance future e^+e^- colliders, FASER and DUNE. The signatures might depend on the underlying theories. If sufficiently light, a scalar can also be produced copiously in supernovae, neutron stars, the Sun, white dwarf and red giants, etc. Therefore its couplings could be constrained by relevant astrophysical observations, e.g. the luminosity limits. In this talk, we will report some recent progress in these directions.

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