

Challenges for long-lived massive particle searches at the LHC

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Studies of the CMS and ATLAS collaborations are presented on the sensitivity to searches for long-lived massive particles. Such particles appear for example in particular SUSY, Extra Dimensions and Hidden Valley models. We show the challenges to trigger and reconstruction posed by such particles, and how CMS and ATLAS plan to solve them. Particular emphasis is given to possible early discoveries, ie with 100 pb^{-1} or less. In special cases, long-lived particles may come to rest in dense material, and decay at much later times; these can be searched for by triggering during periods with no beam-beam collisions.

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