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## Search for long-lived particles using displaced jets at CMS in Run 3

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Many well-motivated beyond-the-standard-model (BSM) scenarios naturally predict the production of hadronically decaying long-lived particles (LLPs) at the LHC, which leads to displaced-jet signatures. A displaced-jet search is therefore a powerful tool to address numerous long-standing puzzles in particle physics. With the Run 3 at LHC that started from 2022, we have developed and deployed a set of new techniques for the displaced jet search at CMS, including new displaced-jet triggers, new reconstruction algorithm, and new machine-learning-based LLP taggers, leading to significant improvements in sensitivities to challenging LLP signatures. We present a recent result using the data collected in 2022, which outperforms previous results by a factor of up to 10 despite analyzing a much smaller data set. Many more new developments and applications can be pursued in Run 3 and HL-LHC, which can significantly expand the discovery potential of BSM physics at CMS.

### Mini Symposia (Invited Talks Only)

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