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Discovery prospects for quasi-stable multiply charged BSM particles at the LHC

Tuesday 23 April 2024 16:45 (15 minutes)

Exotic searches for long-lived BSM particles at the LHC have attracted more attention in the recent years. In the talk, I will provide a comprehensive and model-independent investigation of prospects to detect quasi-stable charged LLPs. I will discuss particles with spin 0 and 1/2, with electric charges in range $1 \leq |Q/e| \leq 8$, which are either singlet or triplet under SU(3). Such BSM particles might be produced as particle-antiparticle pairs and propagate through detectors, or form a positronium (quarkonium)-like bound state. I will discuss both possibilities and present lower mass bounds on new particles that can be provided by ATLAS, CMS and MoEDAL experiments at the end of Run 3 and HL-LHC phases.

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