

Search for dark sector and Axion-like particle at BESIII

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BESIII is a symmetric e^+e^- collider operating at c.m. energy from 2.0 to 4.95 GeV. With the world's largest data set of J/ψ (10 billion), $\psi(3686)$ (2.6 billion), and about 25 fb^{-1} scan data from 3.77 to 4.95 GeV, various dark sectors produced in e^+e^- annihilation and meson decay processes can be searched for at BESIII. Axion-like particles (ALPs) are pseudo-Goldstone bosons arising from some spontaneously broken global symmetry, addressing the strong CP or hierarchy problems. In this talk, we report the search for invisible dark photon decays using initial state radiation, search for invisible muonic Z' boson decays, and search for axion-like particles with a light scalar or vector particle in the muonic decay of J/ψ . We also present the recent results of searches for BNV/LNV and cLFV decays at BESIII, which are forbidden and extremely suppressed in the SM, therefore serving as good probes to new physics beyond the SM as well.

Collaboration (if any)

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