Low energy, high luminosity e+e- colliders are believed to be good places to search for some exotic particles predicted in new physics models with dark sector phenomenology. BESIII as the only currently running tau-charm factory has great potential to probe these particles and models, with the largest samples of directly produced charmonia and some other unique datasets. Here describes some of such searches and related results including search for di-muon decays of a CP-odd light Higgs boson(A0) in the radiative decay of J/ψ, dark photon searches using both the initial state radiation and pseudoscalar meson decays and the study of meson invisible-decays.

**References**