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Search for Dark Particles and Dark Sector at Belle

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Dark sector models can explain the relic abundance of our universe and are attractive scenarios after 13TeV LHC results on new physics searches. We are testing two broad categories of theories, those that: couple to electron and that only couple to heavy-flavor muons or taus. In the first category, we are looking for the dark photon that decays into leptons or hadrons in the radiative process. This process is particularly interesting because it allows to search for light dark matter, chi, in the process: e+ e- → A' gamma, A' → chi chi. In the later category, we are looking for the dark vector gauge boson Z' and the dark scalar Higgs boson h' ' that decays into dimuons in the following processes: e+ e- → mu+ mu- Z' and e+ e- → tau+ tau- h' ', respectively. We report search of these processes using data taken at Belle detector from e+ e- collisions produced by the KEKB collider. We also present search for dark sector particles in meson decays.

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