Contribution ID: **31** Type: **not specified**

Dark matter search in extended dwarf spheroidal galaxies with CTA

Thursday, 26 March 2020 10:00 (40 minutes)

The nature of dark matter (DM) is still a big mystery. Among the varieties of candidates, Weakly Interacting Massive Particle (WIMP) is one of the most promising ones. Gamma-ray observations of dwarf spheroidal galaxies (dSphs) by Fermi satellites put the strongest constraints at mDM~ < a few hundreds of GeV. In the near future, Cherenkov Telescope Array (CTA) starts its operations and expect to probe WIMP of mDM > ~O(1)TeV. Different from previous experiments, spatial distributions of DM in dSphs are resolved with CTA. In this talk, I explain the procedure to extract DM signals in gamma-ray observations and how the spatial extension of the dSph affects our accessibility to DM in future experiments.

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Session Classification: Invited talks