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Indirect searches for Dark Matter

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Summary

Several astrophysical and cosmological observations of our Universe point to the existence of an almost non interacting massive species that makes up most of its matter content. This so-called Dark Matter (DM) is believed to be composed of neutral elementary particles that, if unstable, have life-times comparable (larger) to the age of the Universe (~14 billion years). Although the only evidence of its existence is gravitational, there are reasons to believe that the DM is also able to interact otherwise, e.g. weakly; in which case, processes such as annihilations or decays, although rare, create signals that under certain conditions are distinguishable from the expected astrophysical background. Therefore, such indirect processes, expected to mainly occur in the densest DM regions of our Universe, can provide us with some observational signatures that support the so- called Weakly Interacting Massive Particle's (WIMP) paradigm. In this talk I will introduce these concepts more deeply and I will discuss which signals and which targets are the most suitable for DM searches.

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