



Contribution ID: 130

Type: 20 minutes talk

## Indirect detection of long-lived particles via a less-simplified dark Higgs portal

*Friday, 17 December 2021 14:30 (30 minutes)*

Simplified models of light new physics are an important theoretical and experimental benchmark. Models that extend minimal scenarios by introducing other degrees of freedom are well motivated ways to go beyond the Standard Model (SM). In this talk, I will focus on the light dark Higgs portal that connects the dark sector consisting of, e.g., TeV-scale secluded dark matter (DM) with the SM. I will illustrate the phenomenology of this model, focusing on the signatures of DM and long-lived particles (LLP) in complementary experimental searches. These include i) the intensity frontier searches for light new physics, ii) indirect detection (ID) of secluded WIMPs, and iii) future CMB radiation surveys. Finally, I will highlight the important role of non-local effects present in the ID of LLPs which significantly affects the detection strategies, usually tailored to WIMPs. These effects include a) an additional contribution to the photon flux due to the “GC diffusion” effect, b) a linear flux decrease in the long-lived regime due to finite DM density support, and c) a faster flux decrease with LLP decay length for observations focused on small regions of interest, compared to large ones.

### Could you please give the most relevant category for your talk?

Astroparticle

### Will you be pre-recording your talk?

No

### Would you be interested in receiving feedback on your presentation?

No

### Are you happy for your talk to be recorded?

Yes

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**Session Classification:** Full-length talks