



Contribution ID: 98

Type: Oral presentation using Zoom

Influence of dark matter spin on detection possibility at future e^+e^- colliders

Thursday, 28 October 2021 20:40 (20 minutes)

It is commonly believed that Dark Matter (DM) should exist in the form of new, Beyond-the-Standard-Model stable particles.

Despite continued efforts, such particles have not yet been detected, which means that interactions between DM and SM must be very weak. Dark particles, even if they are already produced at existing colliders, evade detection due to tiny signal-to-background ratio.

However, future e^+e^- colliders (e.g. ILC), provide large luminosity and collision energy as well as very clean collision environment (which means low background). They may potentially lead to a breakthrough in the search for dark particles.

In this talk, I will estimate the maximal possible cross section for DM production, calculated within simple (but QFT-consistent) models of Higgs-mediated dark matter of different spins. The estimations will be based on current theoretical constraints and experimental limits on DM-SM interaction strength. For each considered value of DM spin, I will present allowed parameter space and compare the expected signal to the background, determining whether dark particles could be discovered at high confidence level.

1st preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

2nd preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

Primary author: IGLICKI, Michał (University of Warsaw)

Presenter: IGLICKI, Michał (University of Warsaw)

Session Classification: H-3: BSM particle production

Track Classification: Parallel sessions: Topical Groups: Session H: BSM particle production