



Contribution ID: 73

Type: Talk

Constraining New Physics with Possible DM Signatures from the Study of FCNC Processes

Thursday 15 December 2022 16:00 (15 minutes)

We constrain the parameter space of a simplified dark matter model with a spin-0 mediator and a fermionic dark matter from low energy observables like anomalous magnetic moment, FCNC processes like neutral meson mixing, rare decays of B_0, B_s^0, K meson, semileptonic $b \rightarrow s\ell\ell$ decays, invisible decays of B and K meson and process like $t \rightarrow bW_\mu$ decay. FCNC is generated in this model via one loop penguin diagram. We have looked into the phenomenology in the higher values of mediator mass as well as the low mass region ($M_S \leq 10\text{GeV}$). Tight constraints are obtained for both regions. Those constraints are used to further constrain the dark sector parameters from relic density and spin-independent crosssection limit given by XENON1T. Those constraints can also be used for other phenomenological studies.

Session

Quark and Lepton Flavour Physics

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Session Classification: WG8 - Quark and Lepton Flavour Physics