

Multipartite Dark Matter at Direct and Collider Searches – DST SERB



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The universe consists of a significant amount of Dark Matter (26% energy budget), It may possess more than one fundamental particle; The project aims at studying such multi particle dark matter models and study the discovery potential in ongoing direct and collider search experiments.

- ❖ Several works are under progress. One framework under scrutiny is a WIMP-FIMP framework involving a vector boson dark matter and a scalar singlet dark matter. We study the available parameter space of the model from relic density and direct search constraints. Some examples shown beside for WIMP scalar on top and FIMP on the bottom panel.
- ❖ In another set of works we show the distinction of dark matter components at collider searches at ongoing Large Hadron Collider as well as in future electron-positron collider.
- ❖ We show that kinematic variables like missing transverse momentum and missing transverse energy can show a bump, which may lead to such discovery. The paper is going to come out soon.
- ❖ We also show that it is easier to discover such models in electron-positron machine than LHC and set distinction criteria of two peaks at collider (see figures in the bottom.)

