

Snowmass 2021:

Dark matter at colliders

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2020/05/21 - topical meeting on wino/higgsino

Snowmass topics #1: Testing (simple) WIMP Models

1. Electroweak multiplet.

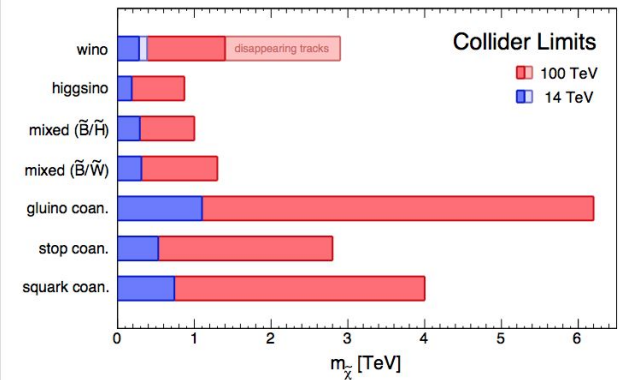
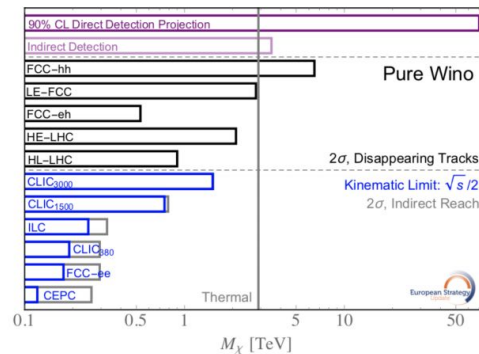
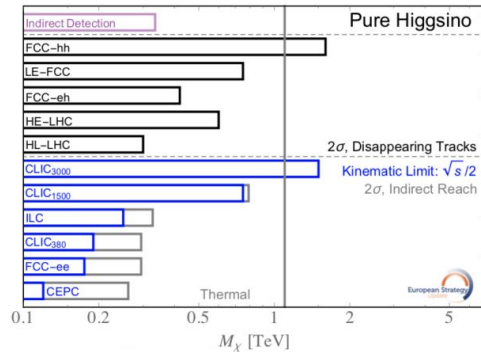
- a. Electroweak multiplet: higgsino/wino(minimal DM). Mediator W/Z/h.
- b. Target: TeV-scale DM masses, motivated by relic density

Questions and points raised during our kick-off meetings [[archived notes](#)]

- Interesting to extend to both minimal and non-minimal models
- Different spins influence complementarity with non-collider experiments

Testing Simple WIMP Models: Results

A number of results are available for simple WIMP-like models



Questions:

- Any obvious case missing?
- What kind of refinement of analysis/projections are needed?
- What are the challenges for controlling systematic uncertainties, trigger/detector/machine design?

Coming up next

Current focus: broadly agree on benchmarks to study and why → focused questions

- need input from theory/experiments/other Topical Groups & frontiers

Ongoing goal: offer a discussion platform for ongoing studies

Overall goal: propose and answer focused questions with studies on DM benchmarks

EF 10 **Bi-weekly meetings** with the community will be focusing on **more specific topics**.

Every other Thursday, 12:00 -1 pm (US Eastern time).

Next meeting: June 18th.

Topic (TBC): Directions for WIMP simplified model studies

For most up to date info, see our [webpage](#) and slack channel

Energy frontier workshop: date to be fixed soon in July

Joint meeting on LLP and DM interpretations: tentatively July 23-24

Join us and give input!

Webpage of EF 10: https://snowmass21.org/energy/dark_matter

Slack channel: #ef10-dark_matter under <https://snowmass2021.slack.com>

Email list: SNOWMASS-EF-10-DARK_MATTER@FNAL.GOV

Instructions on how to join: <https://snowmass21.org/energy/start#communications>

Give your input for our next discussion (same link will work for every meeting):

<https://docs.google.com/document/d/1MWH4W1PAs4xKzWBJVzP3fBU8Z06aEsVvorGa2Friljw/edit#>

Expression of Interest form:

https://docs.google.com/forms/d/e/1FAIpQLSeFRaT5iUx4GYrypEiM-T6VId1b8y8lsqaruk714Yomw-9mOQ/viewform?usp=sf_link

Lol: <https://snowmass21.org/loi> , deadline: Aug. 31, 2020