Cosmo section - plan after first meeting

1

General overview of interplay of cosmo/astro/DM detection for t-channel models

- Standard vanilla WIMP scenario: freeze-out, cohannihilation (here some interplay with LLPs for compressed mass spectra) and one single DM candidate (100% relic density);
- Freeze-in DM scenarios (interplay again with LLPs section);
- Comprehensive overview of the literature with references to papers for technical details;
- Focus on s-wave, p-wave, d-wave specificities for the annihilation cross-section and in gamma-ray signals (lines, bremsstrahlung,…).

2

New analysis of few selected models

Global analysis, starting from relic density with bound states to indirect and direct detection signals and interplay constraints.

3

Define benchmark models

- From all results in the literature and from item 2 (ideally) benchmark are proposed to experimentalists;
- Benchmarks motivated either by UV/theoretical complete models either by testability;
- Benchmarks include cosmo/astro assumption included, namely correct relic density, ok with DD/ID, …

Cosmo section - main questions

1

Which models do we want to analyses?

- Universal couplings to all quarks, only top, flavored, …;
- Choice should be somehow dictated by an overall consistency with the whole paper and by the novelty of the results.

2

How to divide the work and how much work ?

- Question addressed in the next cosmo meeting (should happen in the week 6-10 March, fill the doodle please);
- Set up a overleaf for the cosmo section where all participant can edit and contribute;
- How much new results do we want to have (peer-review?)?
- Define if it is possible and in which timeframe to have global analyses, depending on the work force.

3

Interaction with section 2 (models) and other sections

- In general for the whole white paper…
- LLPs, freeze-in,… will be connected with the other sections (the material will be reshuffled appropriately once all there)