

Benchmarks for Run-3

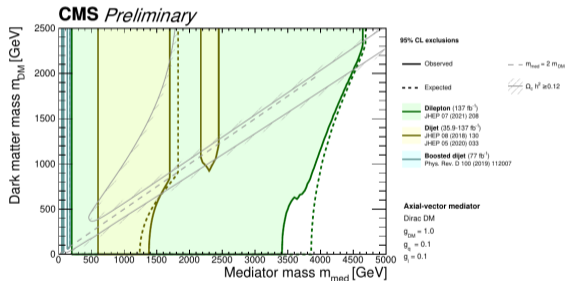
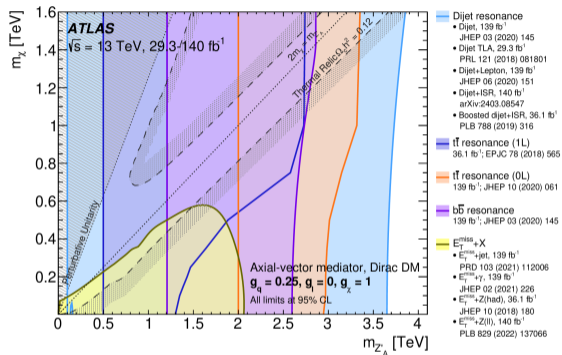
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Thursday 16th May 2024

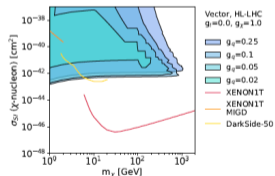
Simplified Models - spin-1



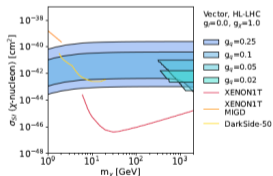
- Original coupling benchmarks now largely excluded (except high- m).
- Do we want to agree lower coupling values?
- Are there more interesting variations?

Simplified Models - spin-1

- Or do we prefer to present scans for varied couplings?
- Which scans/couplings? (Scan g_q with fixed g_X ? Also vary g_X ?)
- Also DD as below?

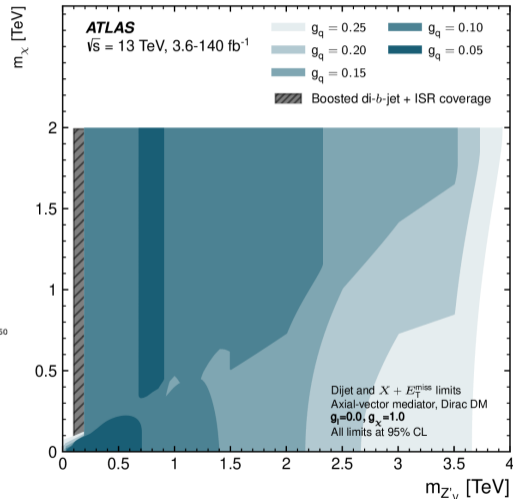


(a) Monojet analysis

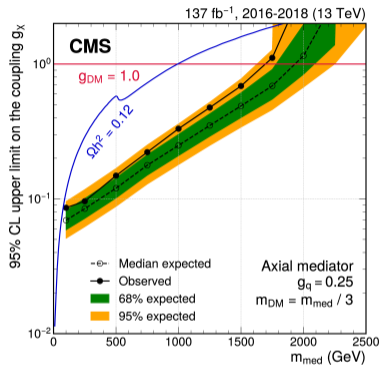


(b) Dijet analysis

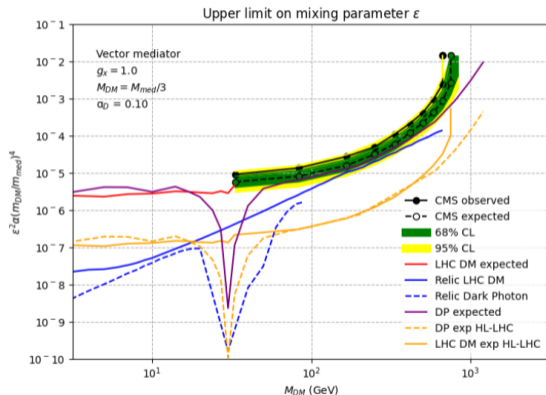
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Simplified Models - comparison to lightDM

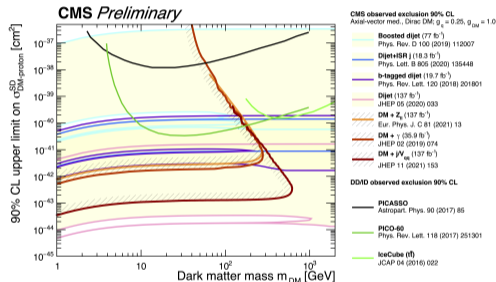
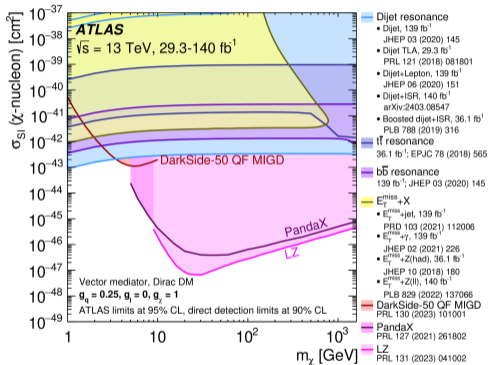


- Interpret in lightDM paradigm
 $m_{\chi} / m_{med} = 1/3$.
- Which models? (DMsimp, HAHM →)
- LHC sensitivity broad, show several m_{χ} / m_{med} ratios? Which?



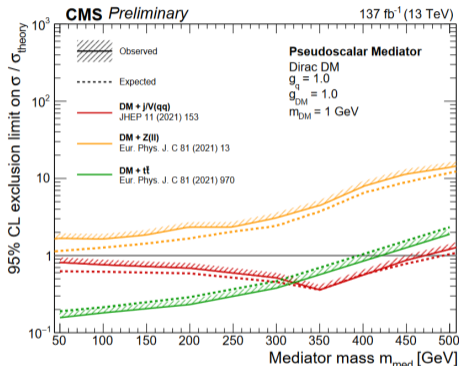
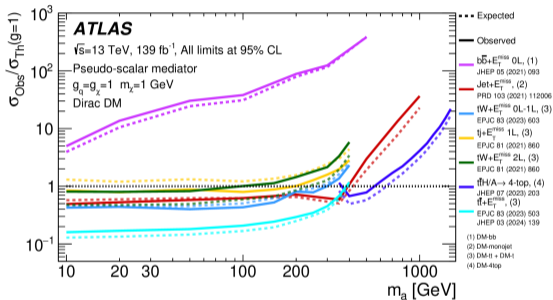
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Simplified Models - comparison to DD/ID



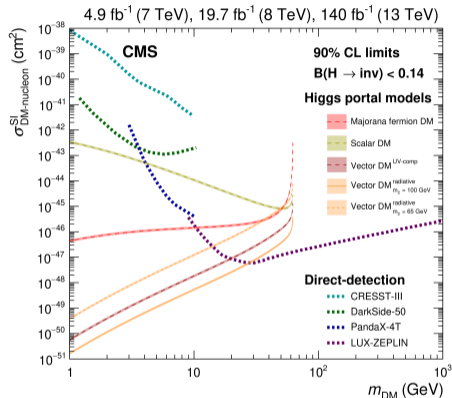
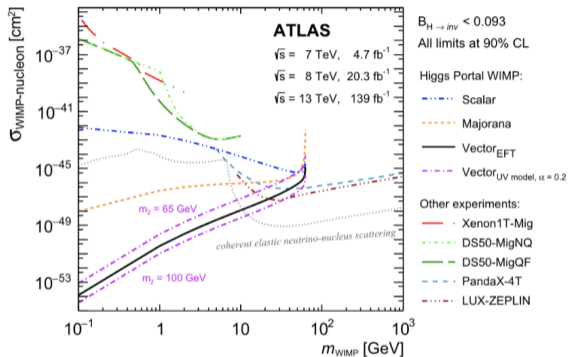
● As before, lower coupling scenarios, and/or show variations?

Simplified Models - spin-0



- Also fully excluded. Useful to push below $0.1 \times \sigma_{\text{theory}}$?
- Reduce couplings (just scaling????)? Focus 2hdma instead?

Invisible Higgs



- Discussed on Tuesday.
- Radiative vs other completion? $m_2 = 65$ & 100 GeV ok?
- Majorana fermion also sensitive to completion/mass?
- How low in m_{χ} to go?