disclaimer

- I'm a (BSM) pheno person.
- I'm a heavy user of MG5aMC, but not a real developer.

VSOP28 : Tools & Monte Carlo

2006–2008 (P.Ko)

2008–2010 (T.Plehn)

2010–2015 (F.Maltoni)

2005–2006 (K.Hagiwara)

1996–2005 (T.Morii)

2015–2017 (S.Kraml)

2017–2019 (S.Kanemura)

2019.10–

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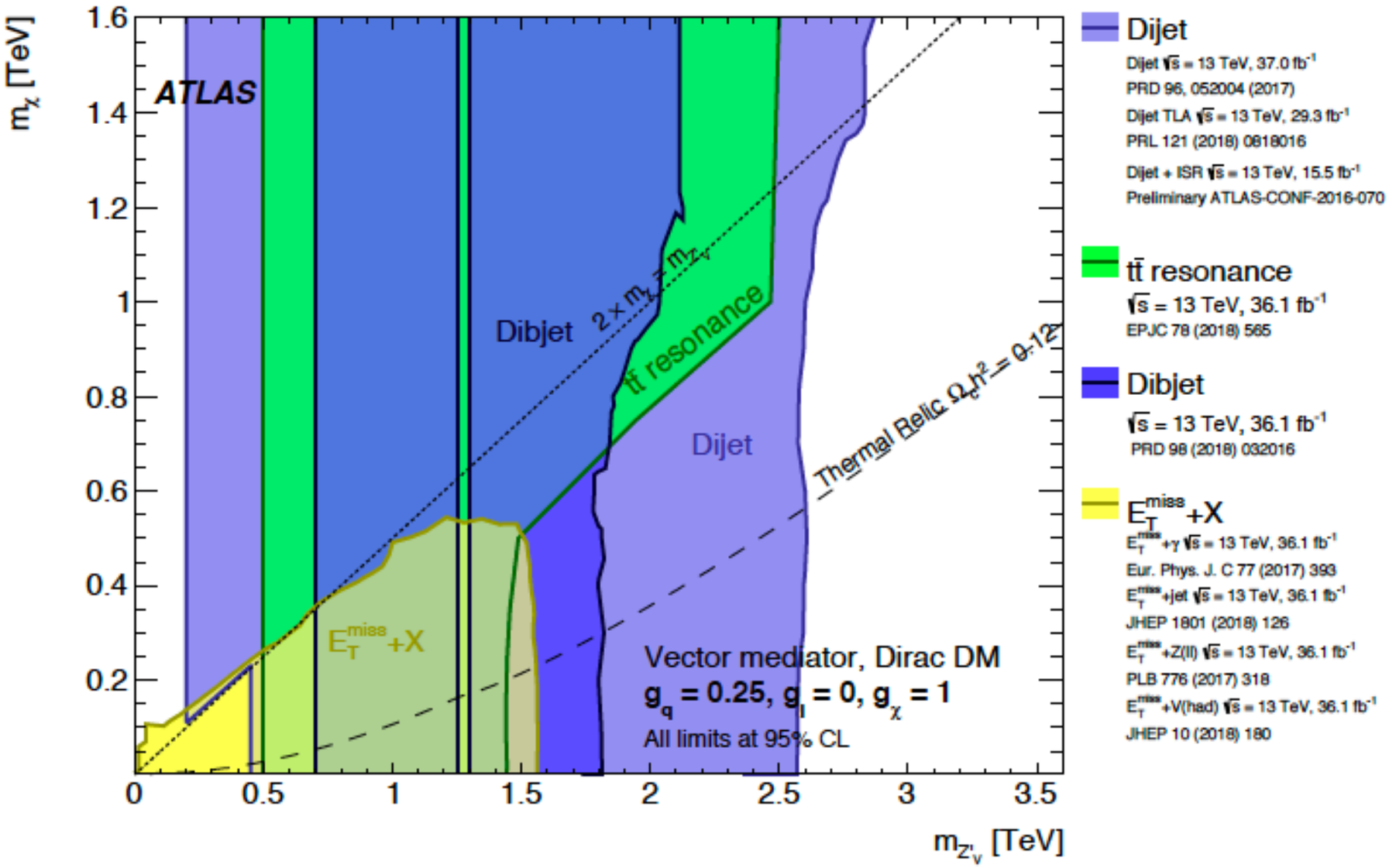
We're ready for the ILC!
~国際リニアコライダーを東北へ!~

[1903.01400]

Constraints on mediator-based dark matter and scalar dark energy models using $\sqrt{s}$ = 13 TeV pp collision data collected by the ATLAS detector

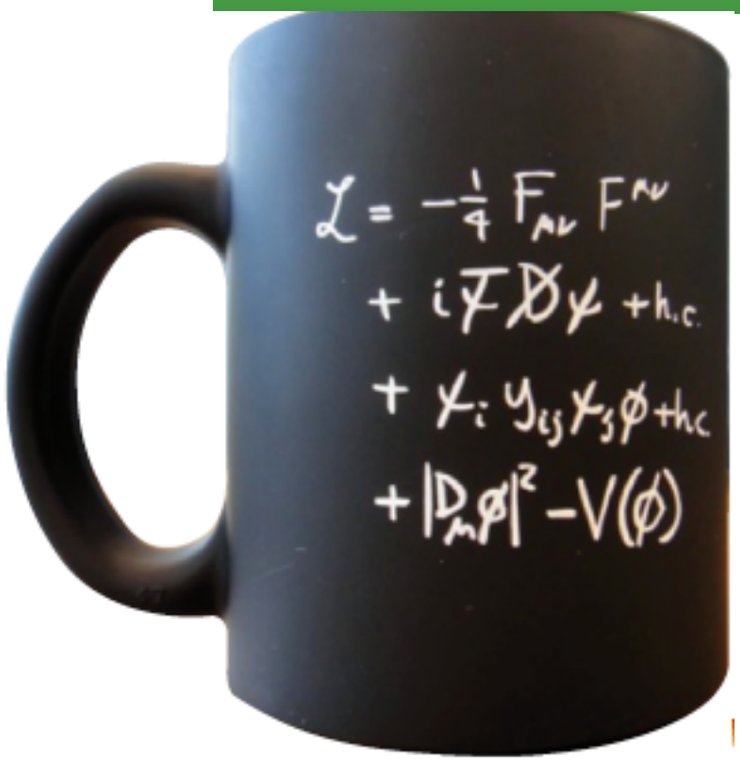


Event generations

Table 2: Details of the generation setup and Universal FeynRules Output (UFO) model used for the spin-1 mediator simplified models, for each signature considered in this paper. [1903.01400]

Model and Final State	UFO	Generator and Parton Shower	Cross-section	Additional details
$Z'(\chi\bar{\chi})+j$	DMV [26, 170]	POWHEG-BOX v2 [171] + PYTHIA 8.205 [172]	NLO	Particle-level rescaling of leptophobic Z'_A scenario of Ref. [26] (see Appendix A.1)
$Z'(\chi\bar{\chi})+\gamma$	DMSimp [113, 173]	MG5_aMC@NLO 2.4.3 (NLO) [174] + PYTHIA 8.212	NLO	Leptophobic Z'_A scenario simulated, other scenarios obtained by cross-section rescaling (see Appendix A.1)
$Z'(\chi\bar{\chi})+V$	DMSimp	MG5_aMC@NLO 2.5.3 (NLO) + PYTHIA 8.212	NLO	Particle-level rescaling of LO samples of Ref. [20] to each of the four NLO scenarios (see Appendix A.1)
$Z'(qq)$ or $Z'(qq)$+ISR	DMSimp	MG5_aMC@NLO 2.2.3 (NLO) + PYTHIA 8.210	NLO	Leptophobic Z'_A scenario simulated, other scenario obtained by Gaussian resonance limits and cross-section rescaling [175]
$Z'(b\bar{b})$	DMSimp	MG5_aMC@NLO 2.2.3 (NLO) + PYTHIA 8.210	NLO	Leptophobic Z'_A scenario simulated, other scenario obtained by Gaussian resonance limits and cross-section rescaling [175]
$Z'(\ell\ell)$	DMSimp	MG5_aMC@NLO 2.2.3 (NLO)	NLO	Gaussian resonance limits and cross section rescaling [175]
$Z'(t\bar{t})$	DMSimp	MG5_aMC@NLO 2.4.3 (LO) + PYTHIA 8.186	LO	Particle level rescaling of the topcolour assisted techni colour samples of Ref. [176] (see Appendix A.1)

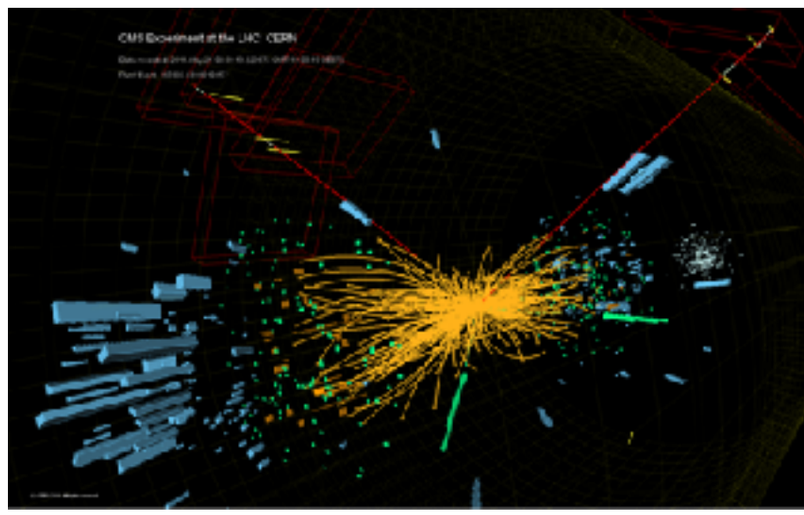
Lagrangian (TH) ⇔ Data (EXP)



simulation tools

prediction

interpretation



so easy, so powerful!

= so dangerous...

Let's learn its proper usage!