



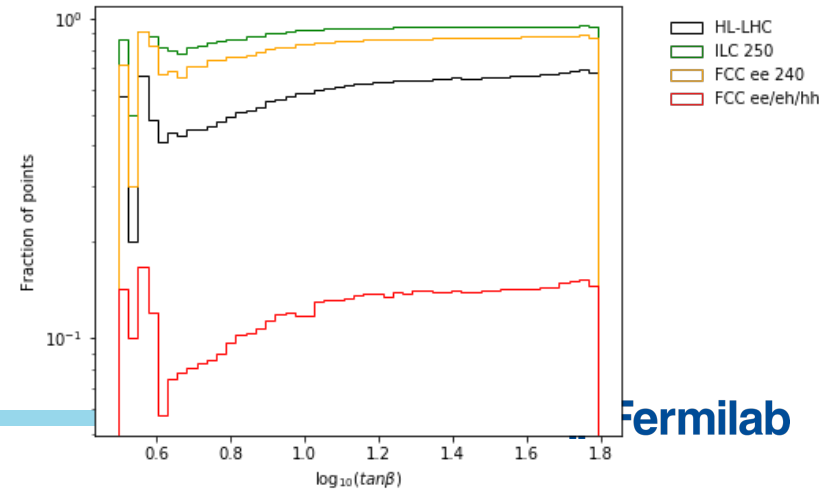
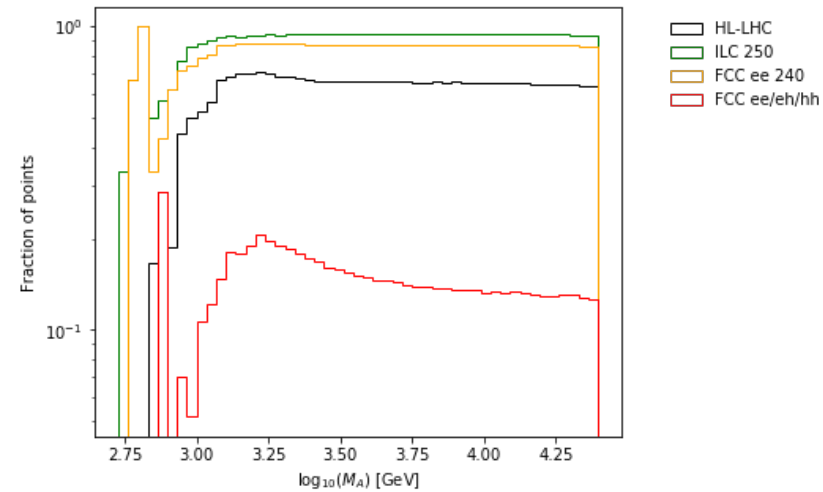
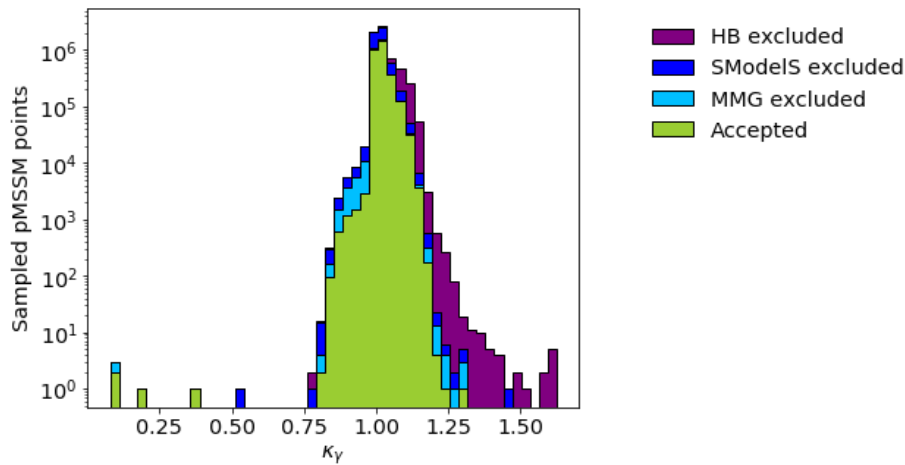
Latest pMSSM plots

Jennet Dickinson

Decoupled point (thanks Sven!)

MW	80.385
MZ	91.1876
GF	0.0000116637
AlfasMZ	0.118
MT	173
MB	4.18
M3SQ	2500
M3SU	2500
M3SD	2500
M3SL	1500
M3SE	1500
Abs (At)	3500
M2SQ	2500
M2SU	2500
M2SD	2500
M2SL	1500
M2SE	1500
M1SQ	2500
M1SU	2500
M1SD	2500
M1SL	1500
M1SE	1500
Abs (Ac)	0
Abs (As)	0
Abs (Amu)	0
Abs (M_3)	3000
Abs (M_2)	1500
Abs (M_1)	1000
Abs (MUE)	1200
MA0	2000
TB	11

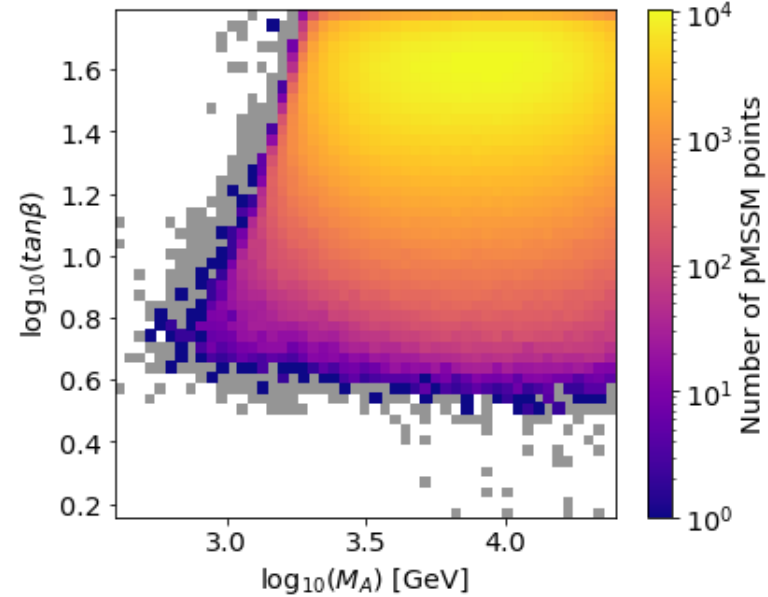
- Normalized with value from decoupled point: BR_h0-photon-photon = 2.32107364E-03
- NB: low stats at very low MA, tb



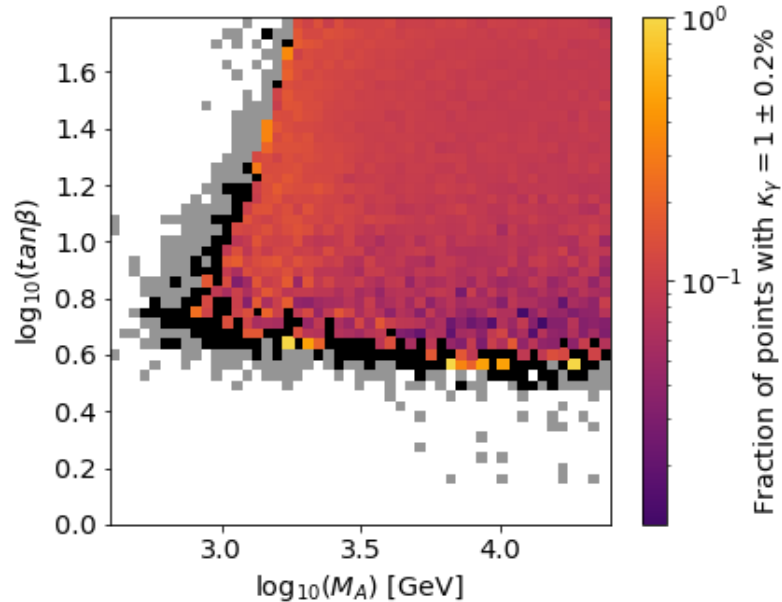
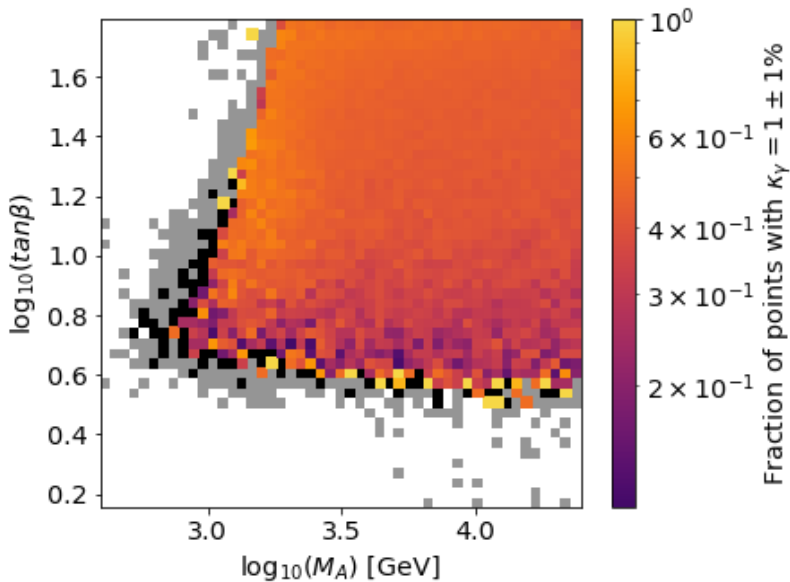
kappa-0	HL-LHC	LHeC	HE-LHC		ILC			CLIC			CEPC	FCC-ee		FCC-ee/eh/hh
			S2	S2'	250	500	1000	380	15000	3000		240	365	
κ_W [%]	1.7	0.75	1.4	0.98	1.8	0.29	0.24	0.86	0.16	0.11	1.3	1.3	0.43	0.14
κ_Z [%]	1.5	1.2	1.3	0.9	0.29	0.23	0.22	0.5	0.26	0.23	0.14	0.20	0.17	0.12
κ_g [%]	2.3	3.6	1.9	1.2	2.3	0.97	0.66	2.5	1.3	0.9	1.5	1.7	1.0	0.49
κ_γ [%]	1.9	7.6	1.6	1.2	6.7	3.4	1.9	98*	5.0	2.2	3.7	4.7	3.9	0.29
$\kappa_{Z\gamma}$ [%]	10.	—	5.7	3.8	99*	86*	85*	120*	15	6.9	8.2	81*	75*	0.69
κ_c [%]	—	4.1	—	—	2.5	1.3	0.9	4.3	1.8	1.4	2.2	1.8	1.3	0.95
κ_t [%]	3.3	—	2.8	1.7	—	6.9	1.6	—	—	2.7	—	—	—	1.0
κ_b [%]	3.6	2.1	3.2	2.3	1.8	0.58	0.48	1.9	0.46	0.37	1.2	1.3	0.67	0.43
κ_μ [%]	4.6	—	2.5	1.7	15	9.4	6.2	320*	13	5.8	8.9	10	8.9	0.41
κ_τ [%]	1.9	3.3	1.5	1.1	1.9	0.70	0.57	3.0	1.3	0.88	1.3	1.4	0.73	0.44

MA, tb plane

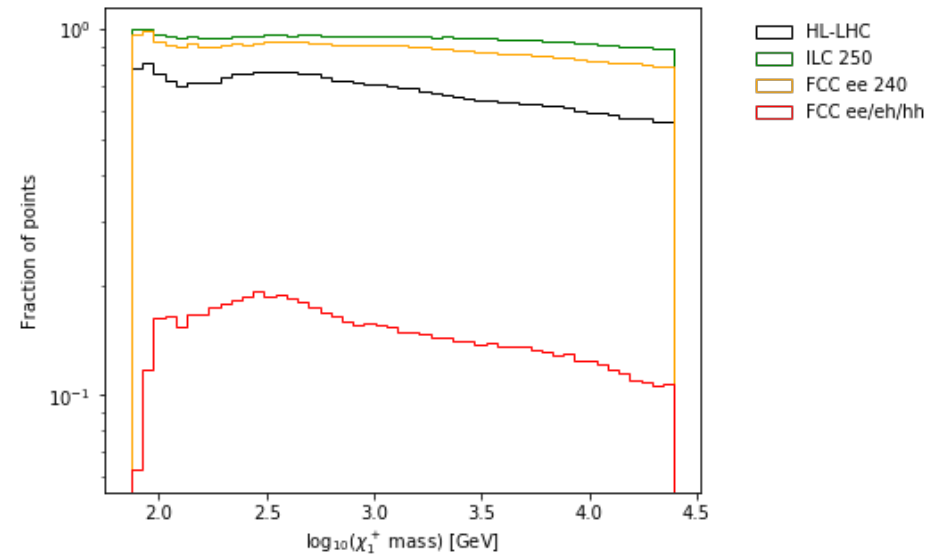
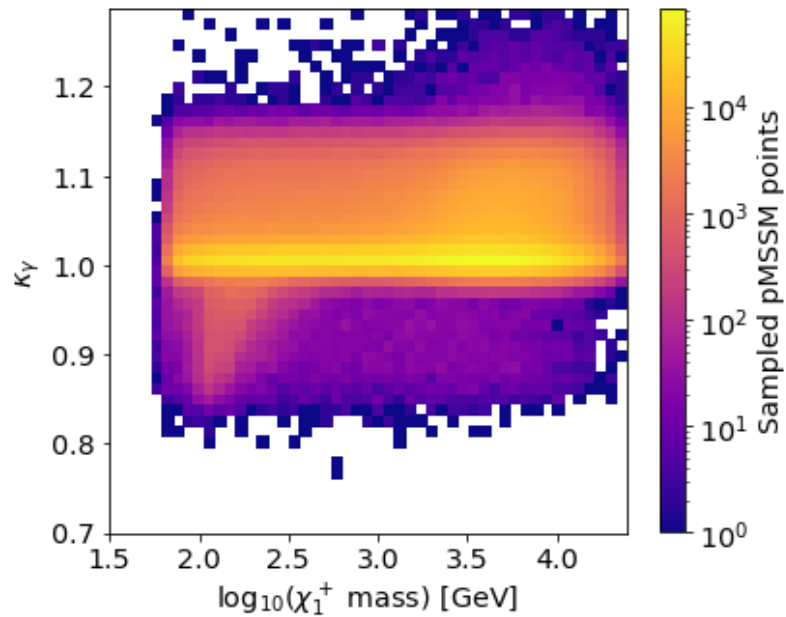
All points ---->
Gray excluded by
SModelS/HB/MMG



- Cutting tighter on κ_γ should cut out low tan beta

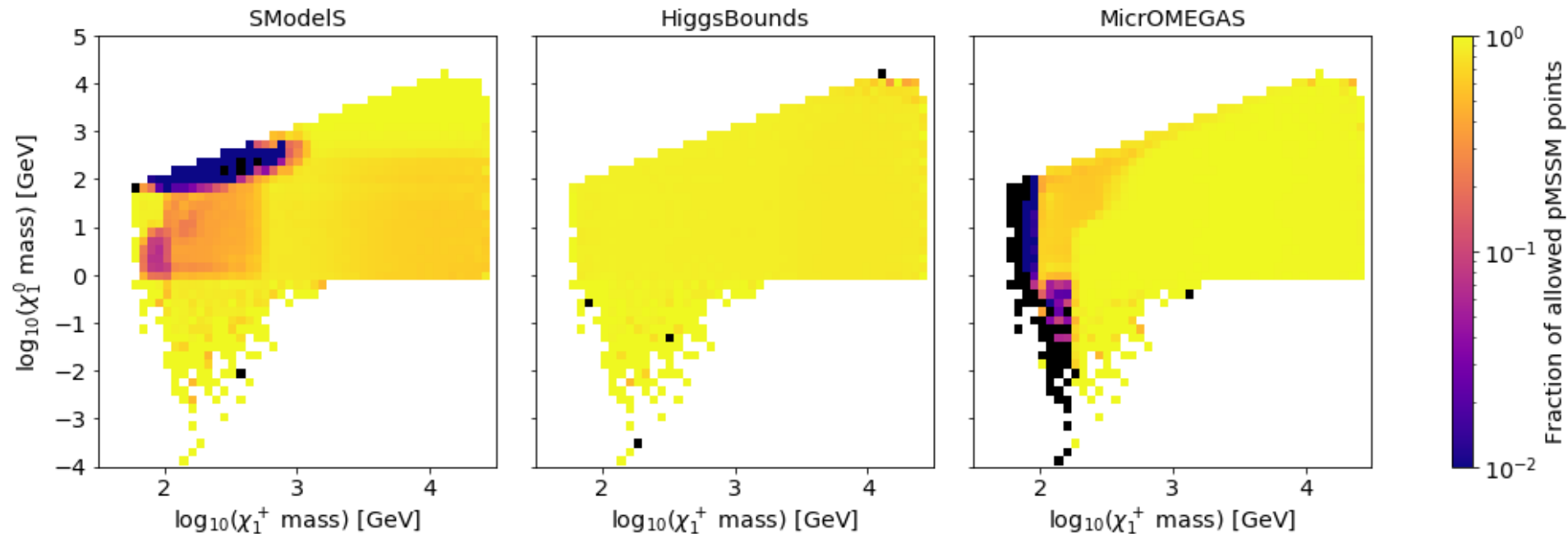
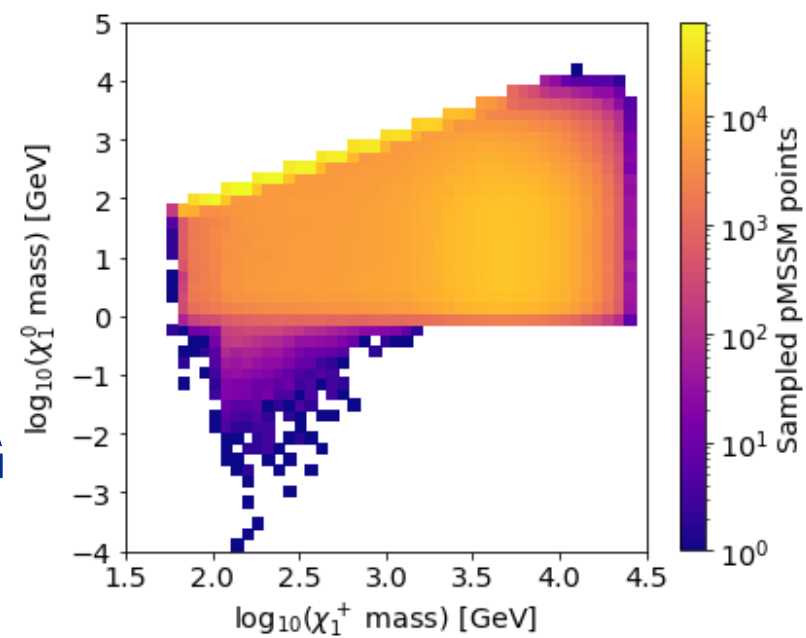


Light charginos and κ_γ

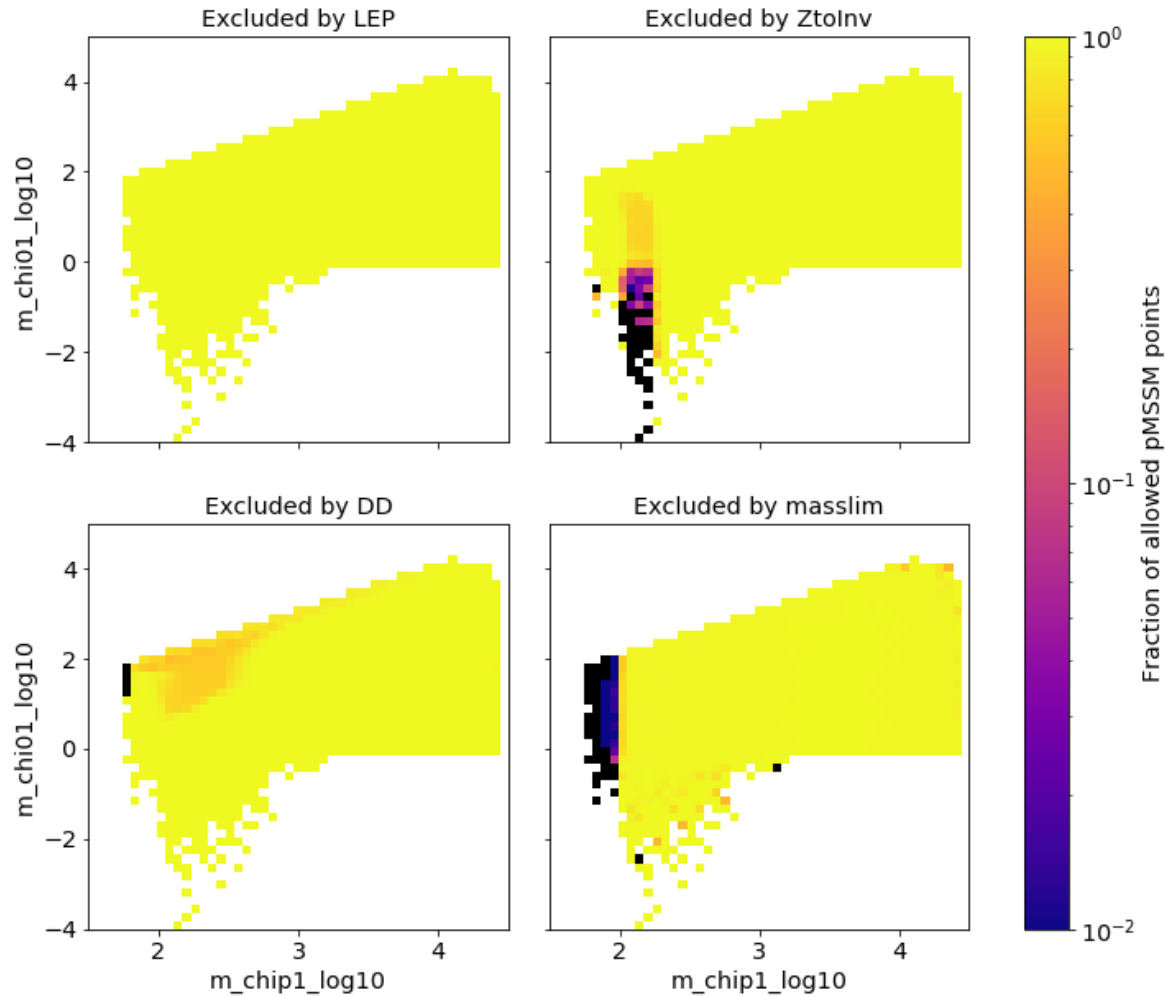


Plane of χ^0_1 , χ^+_1 mass

All points ---->
Gray excluded by
SModelS/HB/MMG

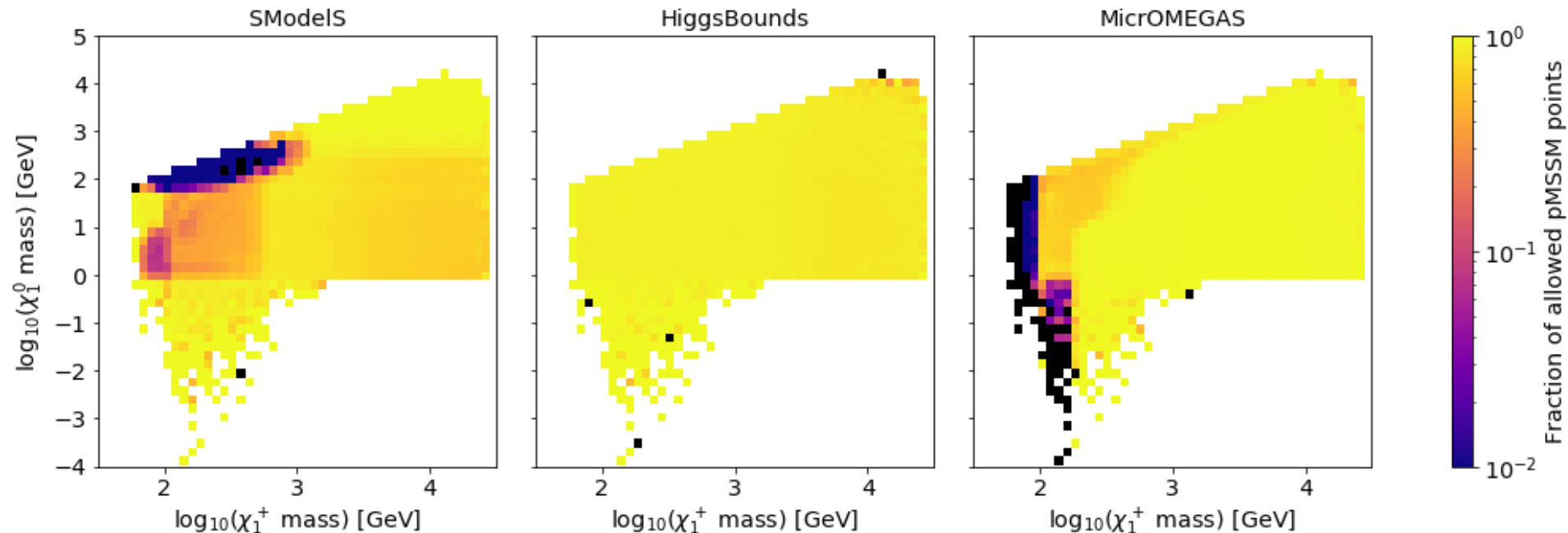


What contributes to the Micromegas exclusion?



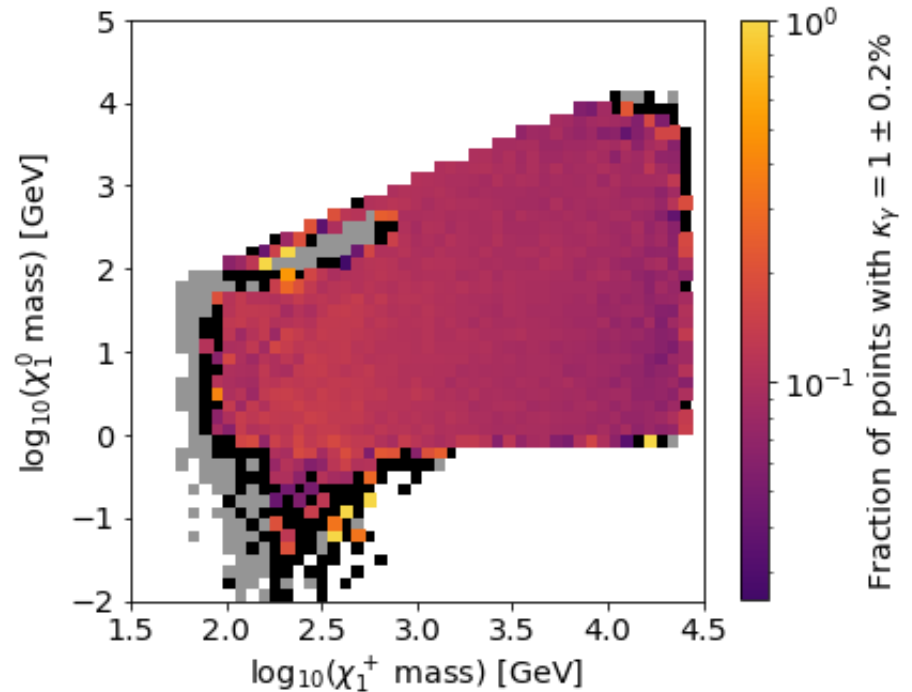
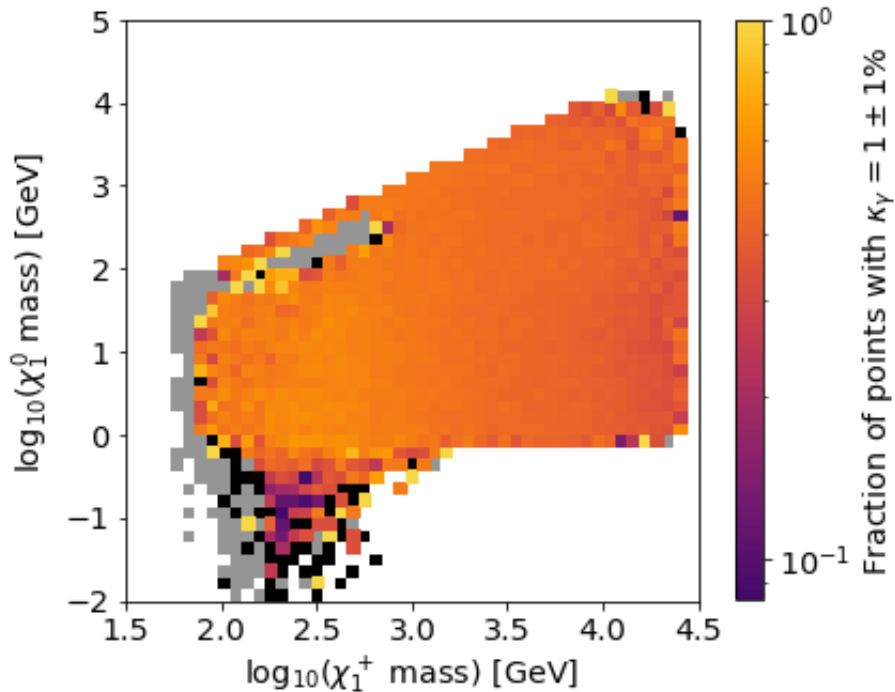
What contributes to the SModelS exclusion?

- <https://smodels.github.io/docs/SmsDictionary>
- https://jdickins.web.cern.ch/pmssm/28June2022/m_chi1_log10_m_chi01_log10/



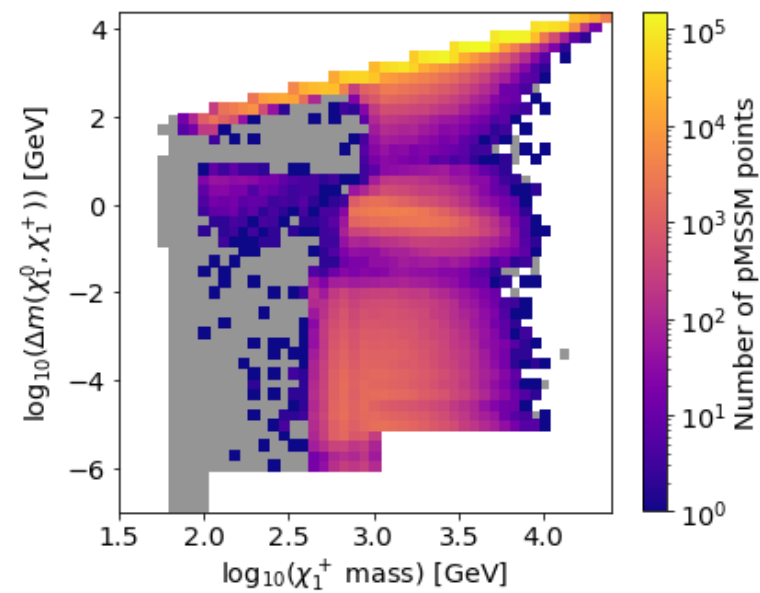
Plane of χ_1^0, χ_1^+ mass

- Cutting tighter on κ_γ should cut out light charginos

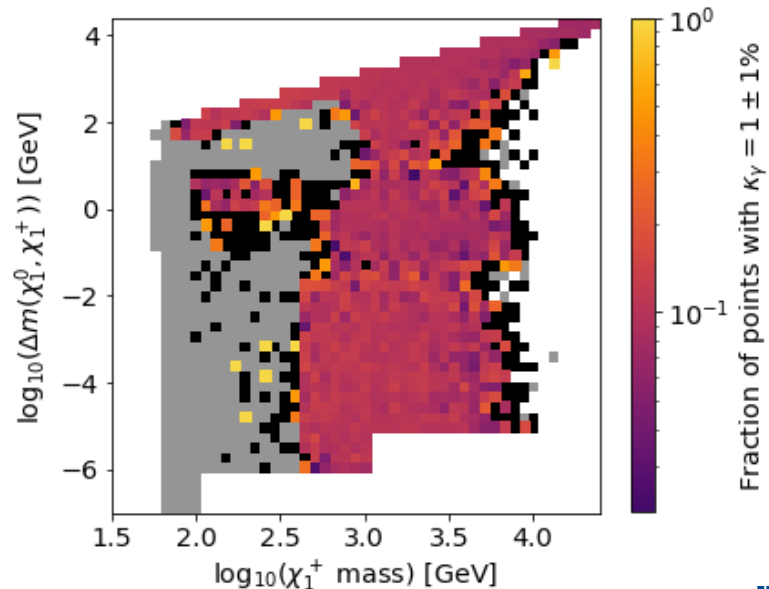
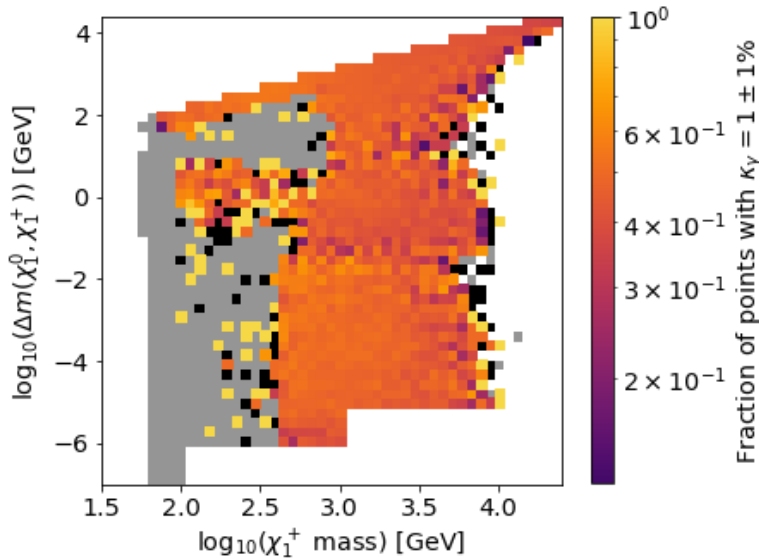


Plane of χ_1^+ mass, $\Delta m(\chi_1^0, \chi_1^+)$

All points ---->
 Gray excluded by
 SModelS/HB/MMG

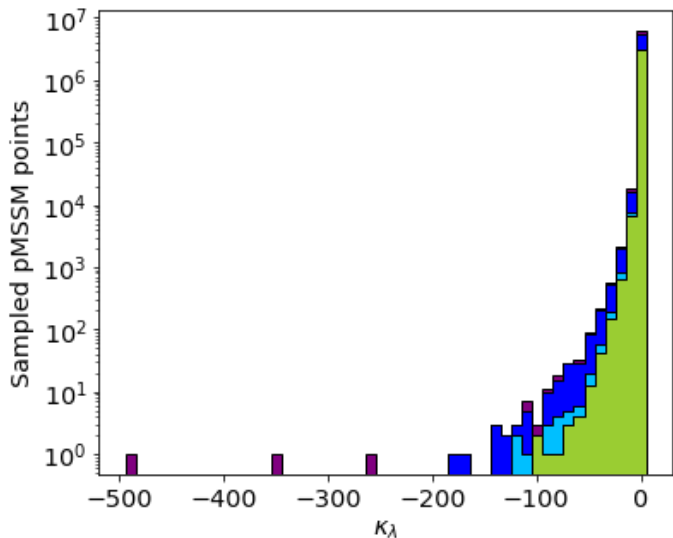


- Cutting tighter on κ_Y should cut out light charginos

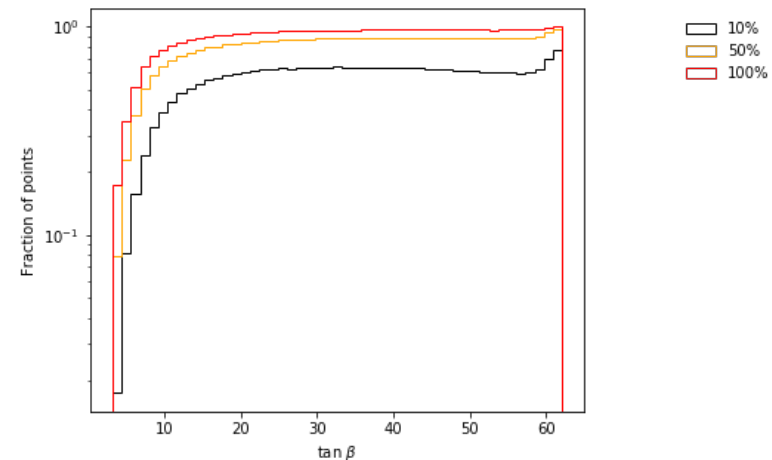
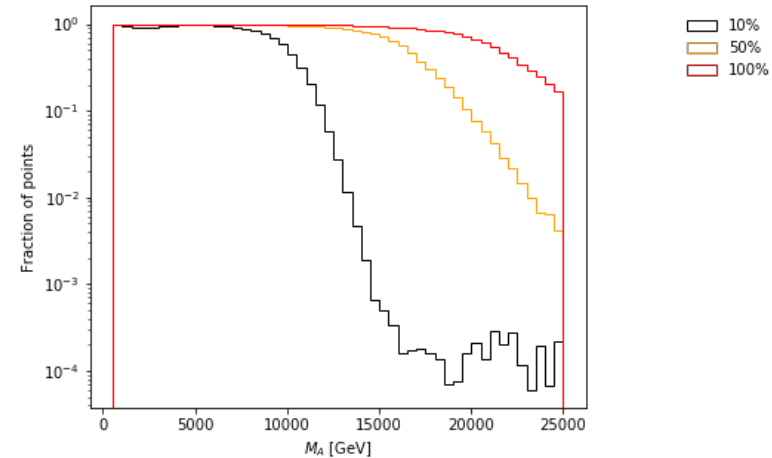


- Normalized with value from decoupled point: higgs-higgs-higgs_Im = -156.62865856977592
- All plots:

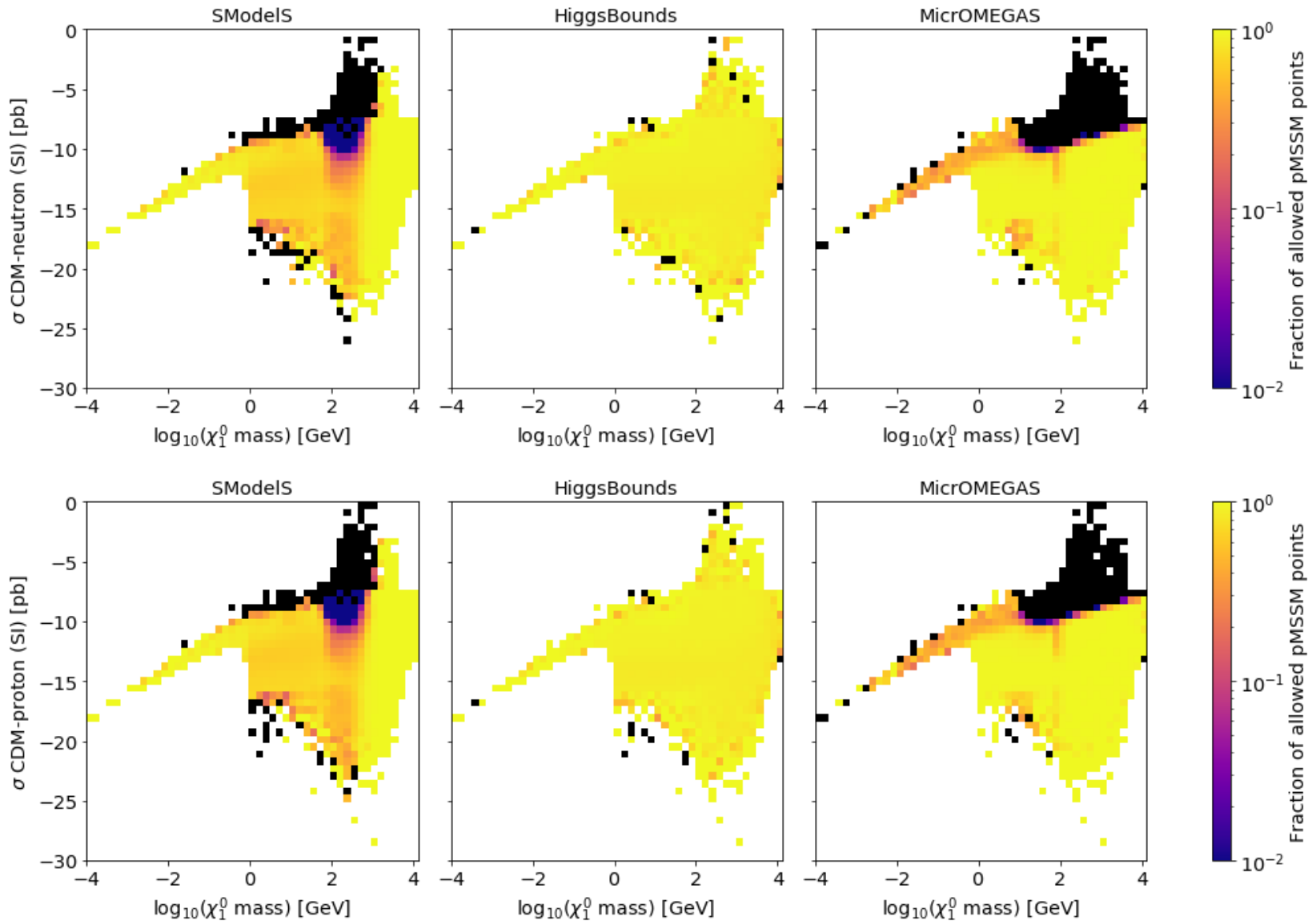
Still weird? Shouldn't exclude high M_A ...



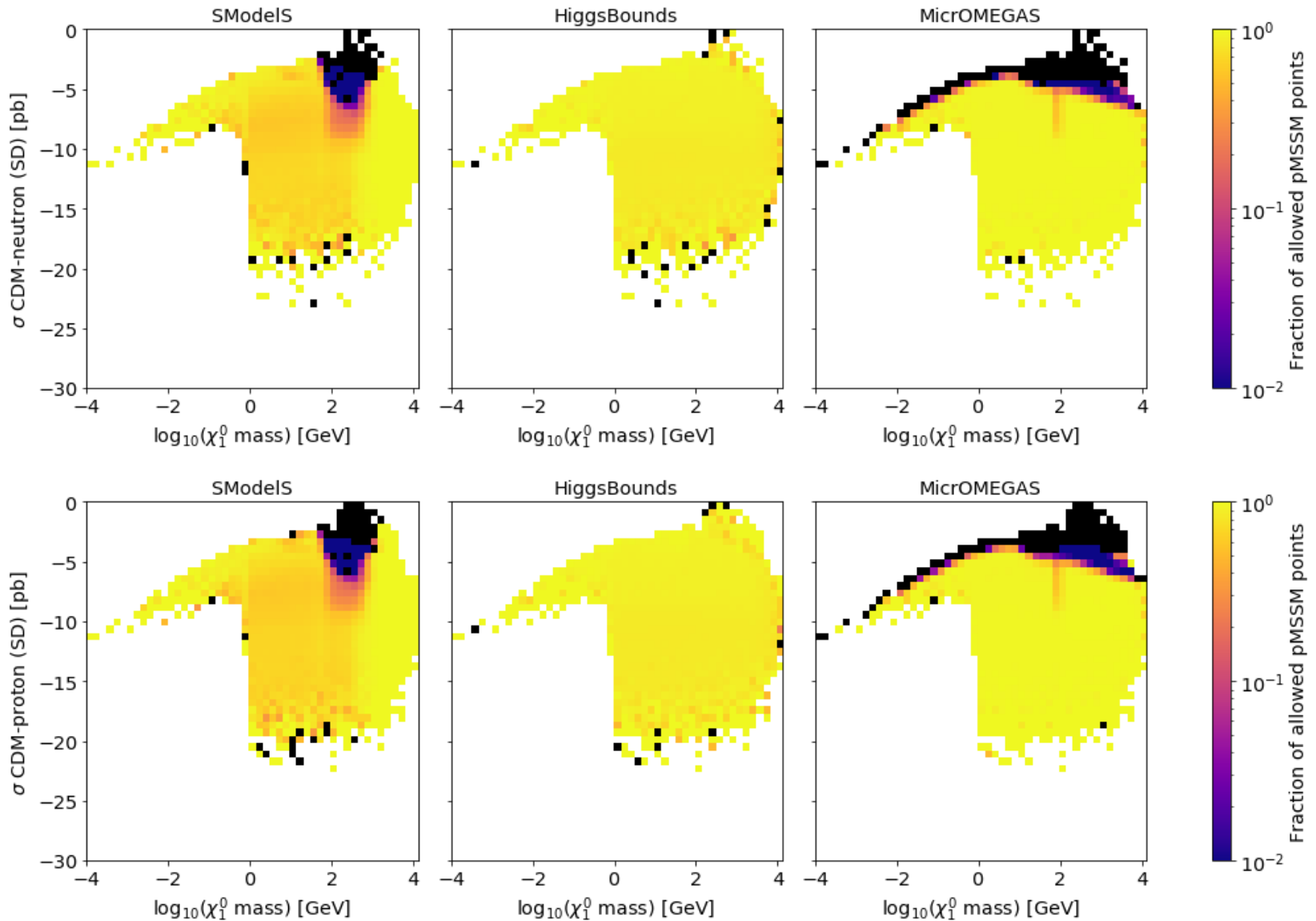
■ HB excluded
■ SModels excluded
■ MMG excluded
■ Accepted



DM cross section (spin-independent)

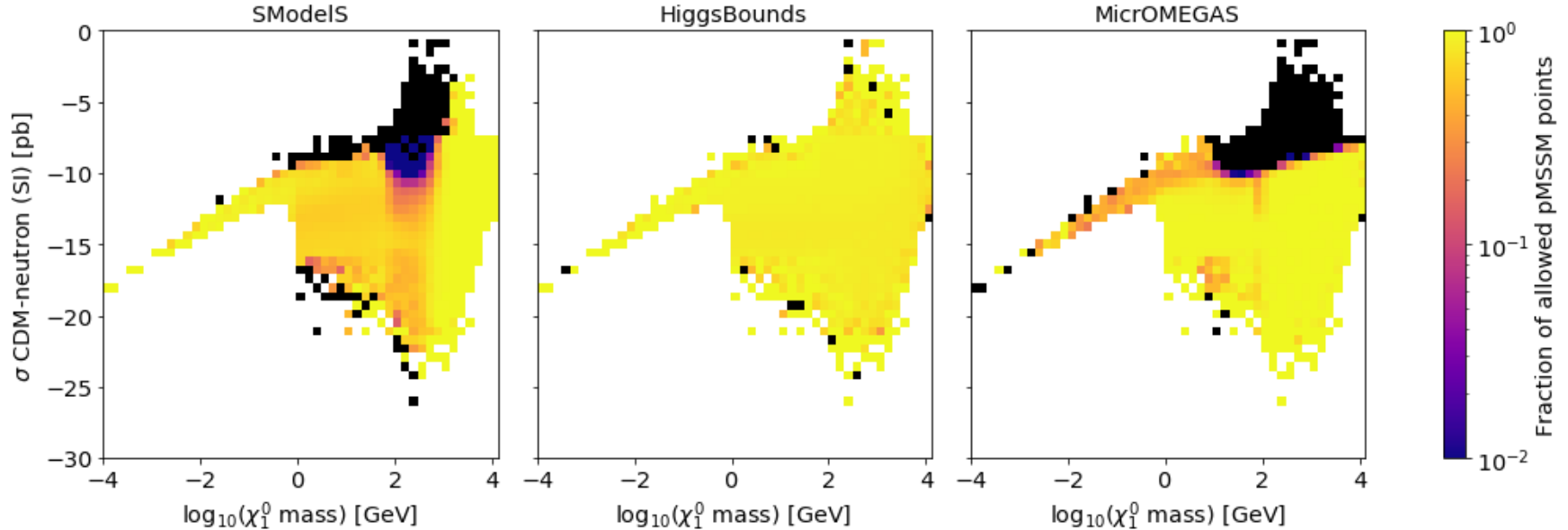


DM cross section (spin-dependent)



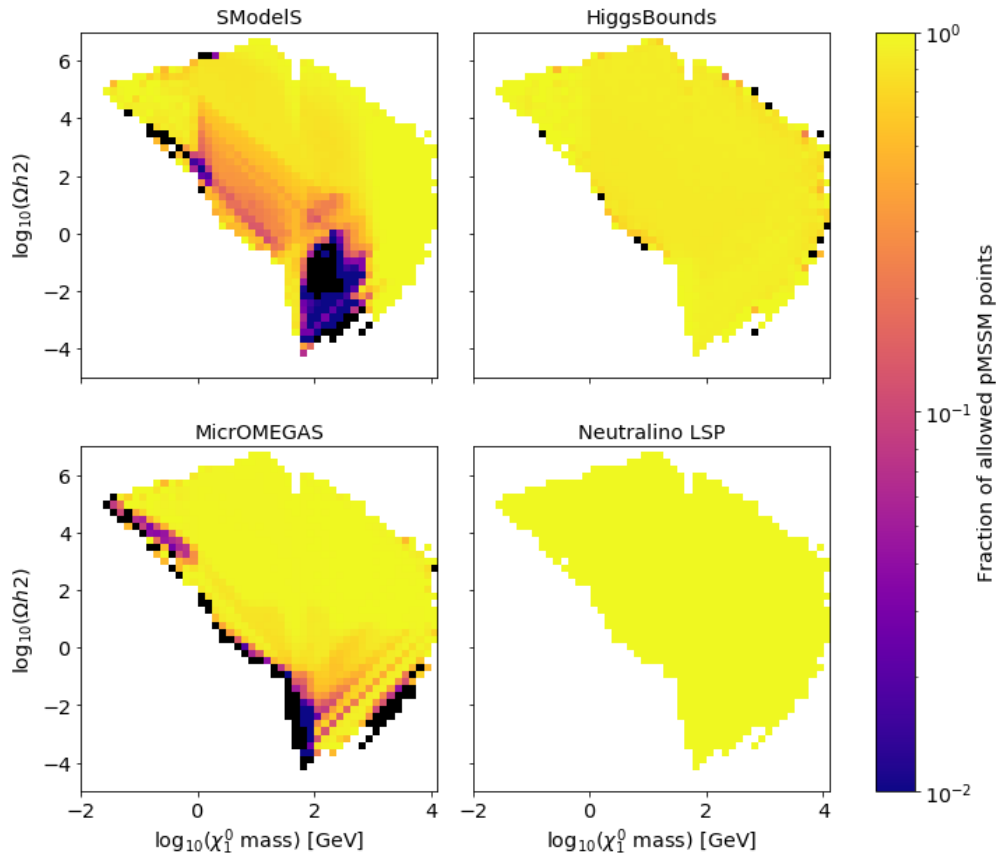
What contributes to the SModelS exclusion?

- https://jdickins.web.cern.ch/pmssm/28June2022/m_chi01_log10_CDMneutron_SIXS_log10/

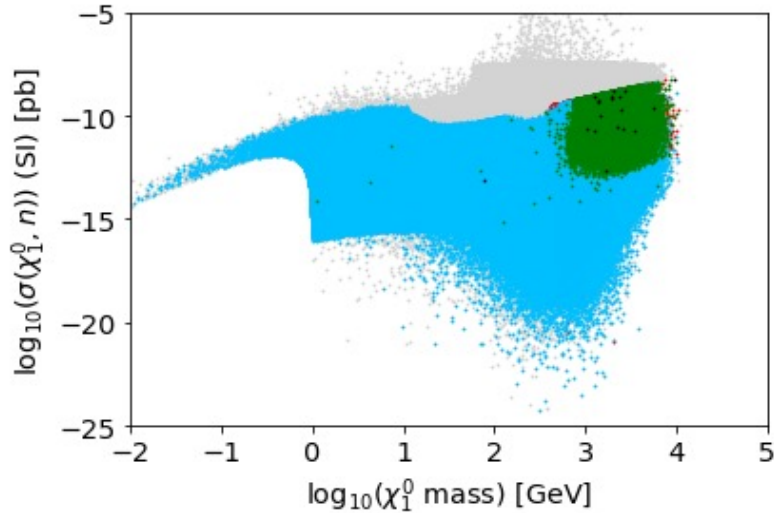


What contributes to the SModelS exclusion?

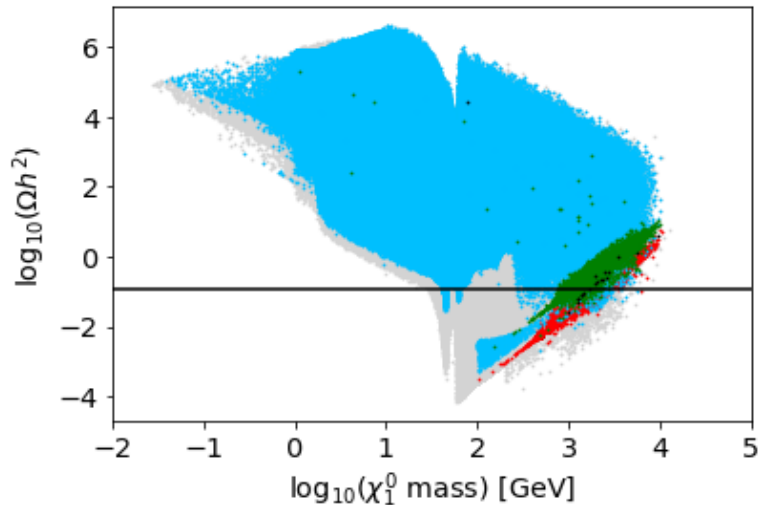
- https://jdickins.web.cern.ch/pmssm/28June2022/m_chi01_log10_omega_h2_log10/



Scatter plots showing excluded points



- Excluded
- Mostly wino
- Mostly bino
- Mostly higgsino
- Mixed



- Measured
- Excluded
- Mostly wino
- Mostly bino
- Mostly higgsino
- Mixed