Improving $\Omega_{CDM} h^2$ in the A^0 annihilation funnel

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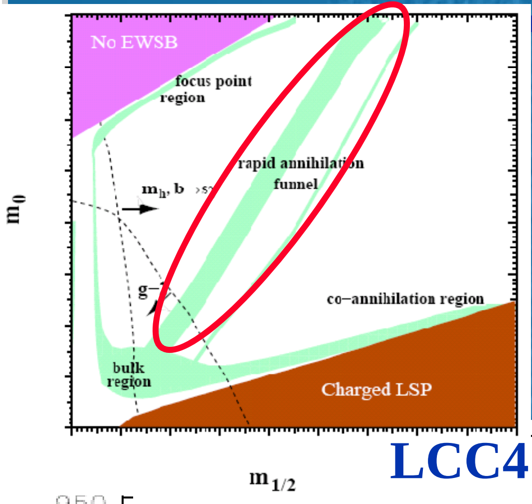
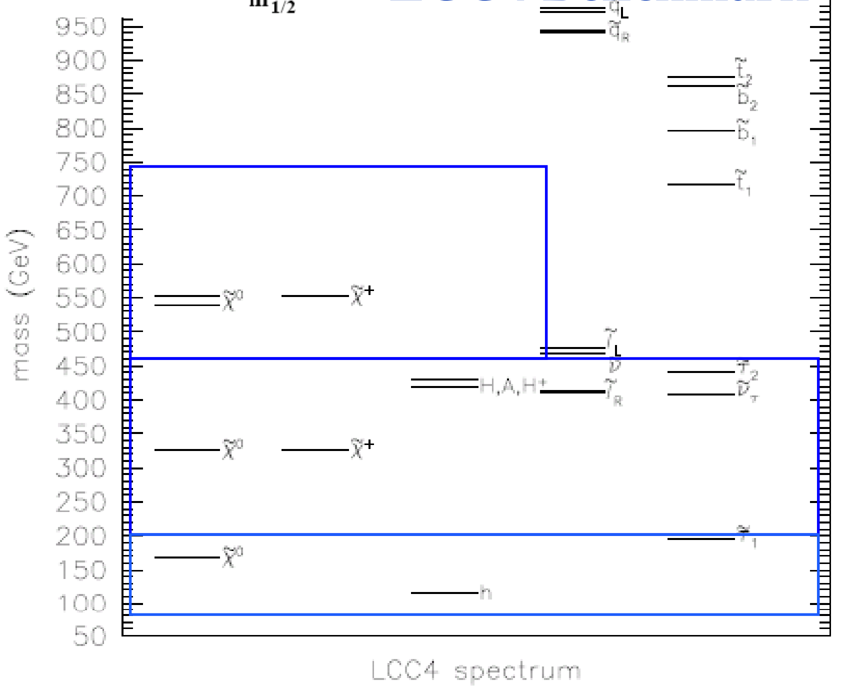
The SUSY Sector of the LCC4 Point



LCC4 Benchmark

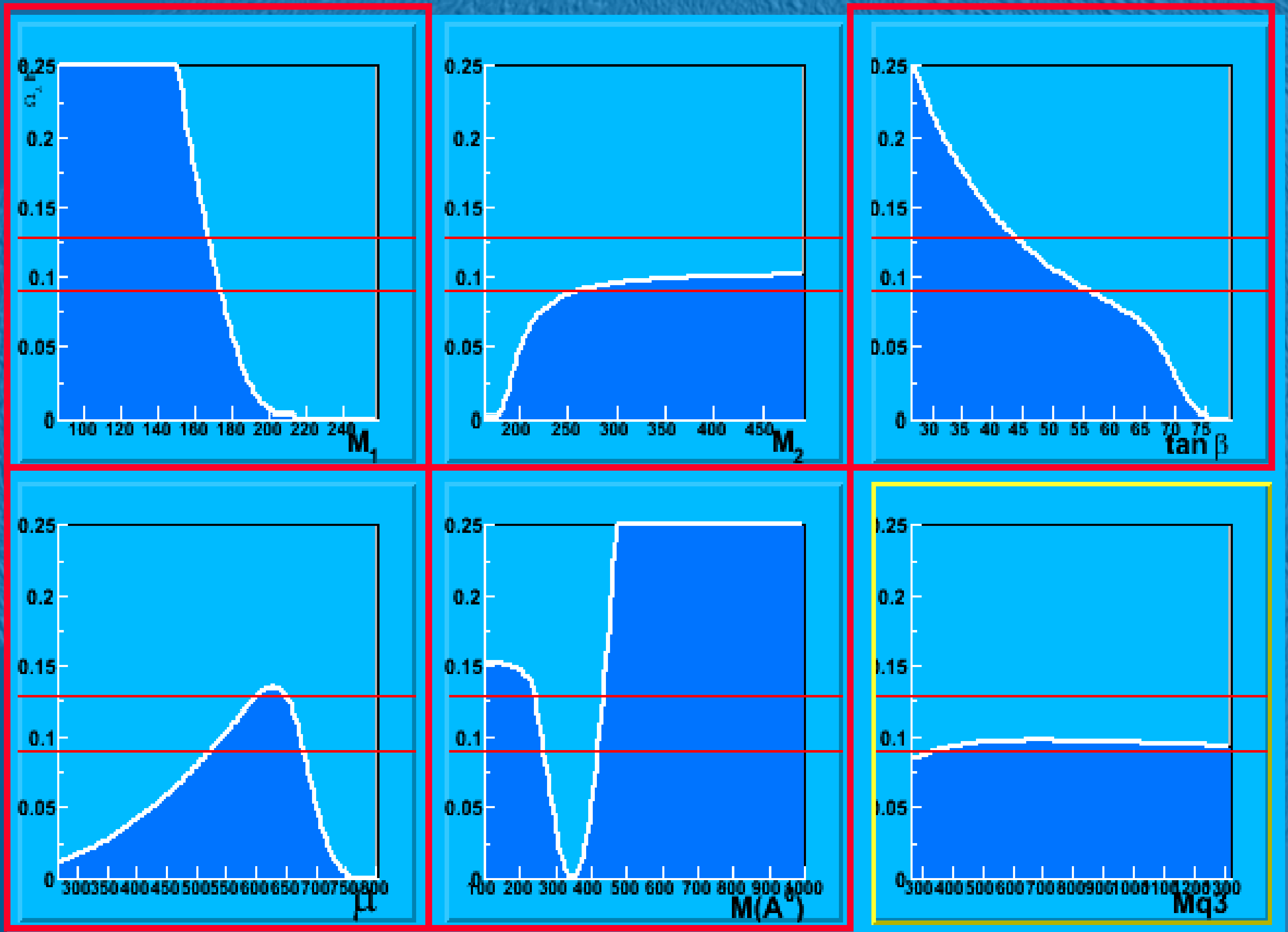


LCC4 point in A^0 Funnel region

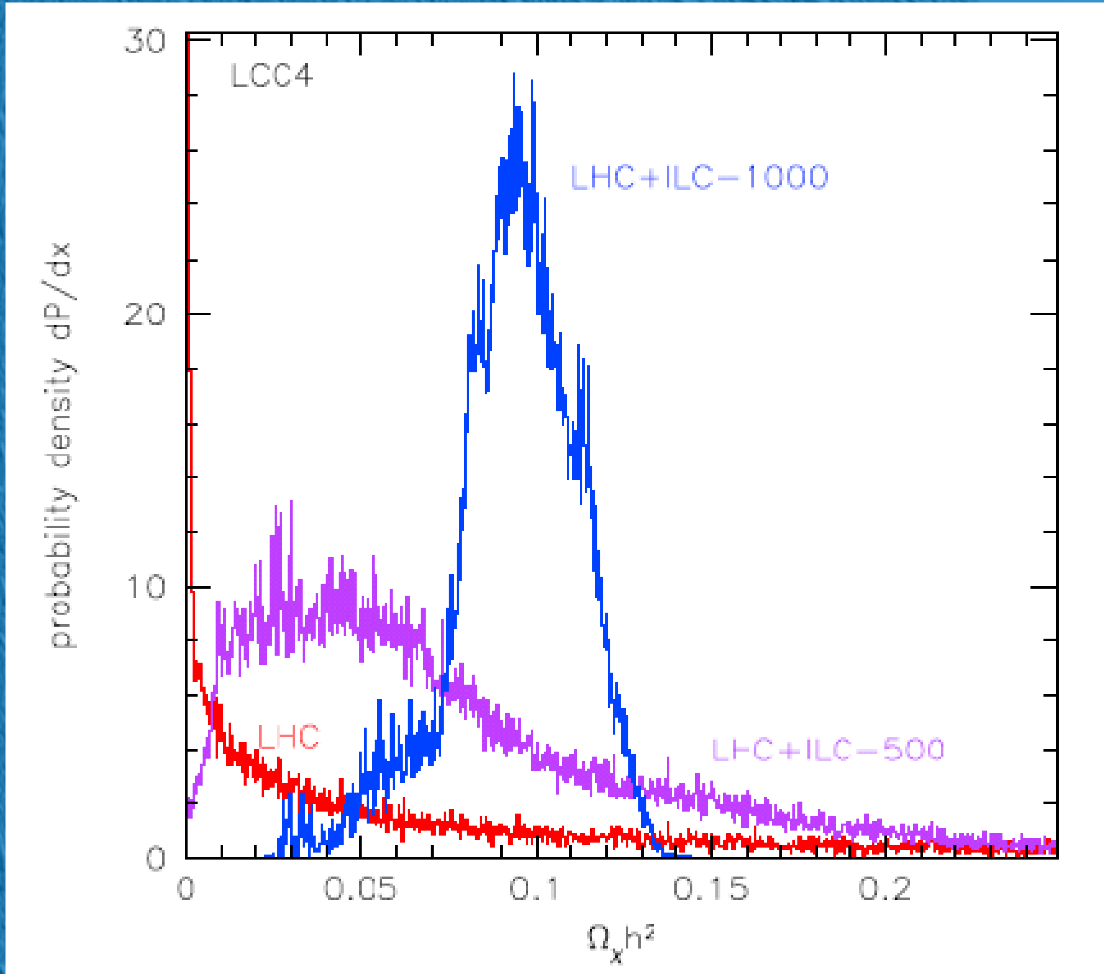
Benchmark point defined in cMSSM

mass/mass splitting	LCC4 value		LHC	ILC 500	ILC 1000
$m(\tilde{\chi}^0_1)$	169.1	$\pm$	17.0	-	1.4
$m(\tilde{\chi}^0_2)$	327.1	$\pm$	49.		
$m(\tilde{\chi}^0_2) - m(\tilde{\chi}^0_1)$	158.0	$\pm$	-	-	1.8
$m(\tilde{\chi}^0_3) - m(\tilde{\chi}^0_1)$	370.6	$\pm$	-	-	2.0
$m(\tilde{\chi}^+_1)$	327.5	$\pm$	-	-	0.6
$m(\tilde{\chi}^+_1) - m(\tilde{\chi}^0_1)$	158.4	$\pm$	-	-	2.0
$m(\tilde{\chi}^+_2) - m(\tilde{\chi}^+_1)$	225.8	$\pm$	-	-	2.0
$m(\tilde{e}_R) - m(\tilde{\chi}^0_1)$	243.2	$\pm$	-	-	0.5
$m(\tilde{\mu}_R) - m(\tilde{\chi}^0_1)$	243.0	$\pm$	-	-	0.5
$m(\tilde{\tau}_1)$	194.8	$\pm$	-	0.9	
$m(\tilde{\tau}_1) - m(\tilde{\chi}^0_1)$	25.7	$\pm$	-	1.0	
$m(h)$	117.31	$\pm$	0.25	0.05	
$m(A)$	419.3	$\pm$	1.5 *	-	0.8
$\Gamma(A)$	14.8	$\pm$	-	-	1.2
$m(\tilde{u}_R), m(\tilde{d}_R)$	944.,941.	$\pm$	94.		
$m(\tilde{s}_R), m(\tilde{c}_R)$	941., 944.	$\pm$	97.		
$m(\tilde{u}_L), m(\tilde{d}_L)$	971., 975.	$\pm$	141.		
$m(\tilde{s}_L), m(\tilde{c}_L)$	975., 971.	$\pm$	146.		
$m(\tilde{b}_1)$	795.	$\pm$	40.		
$m(\tilde{b}_2)$	862.	$\pm$	86.		
$m(\tilde{t}_1)$	716.	$\pm$	(> 345)		
$m(\tilde{g})$	993.	$\pm$	199.		

$\Omega_\chi h^2$ and SUSY Parameters at LCC4

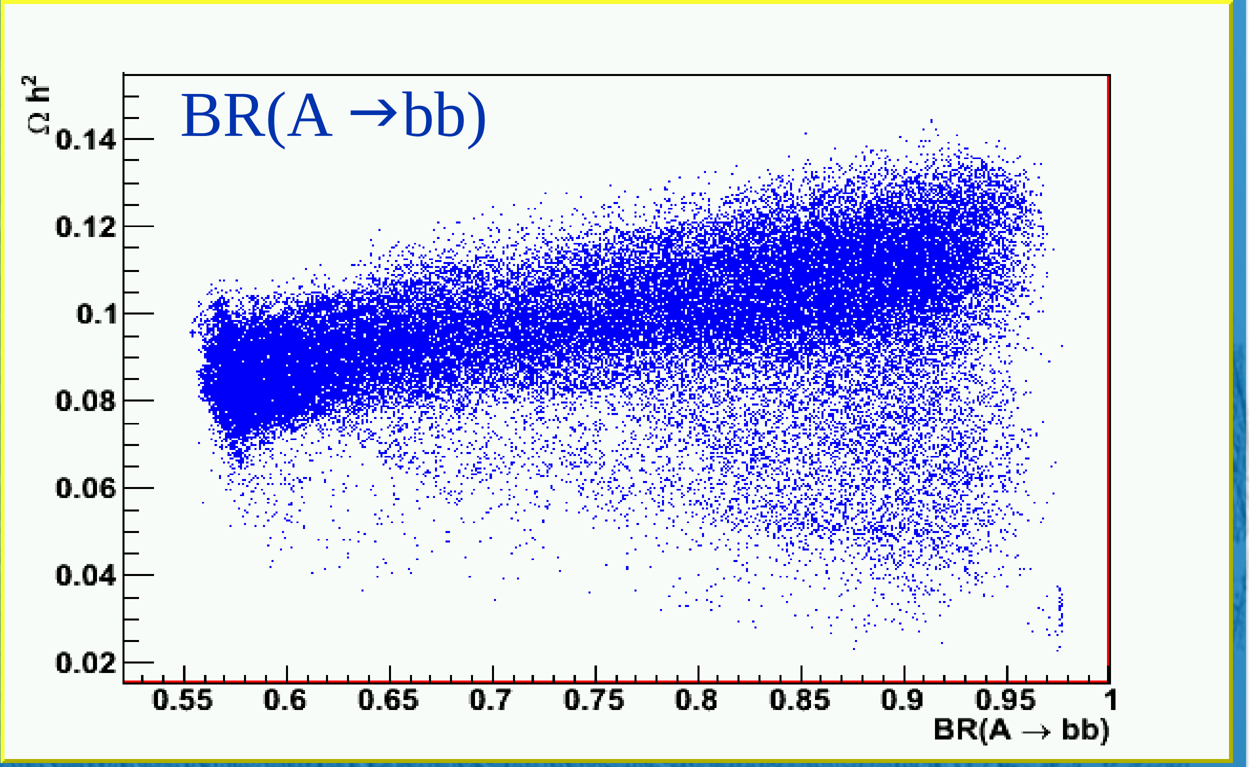


Analysis of Markov Chain MSSM scans to identify further observables to possibly improve DM density determination at the ILC

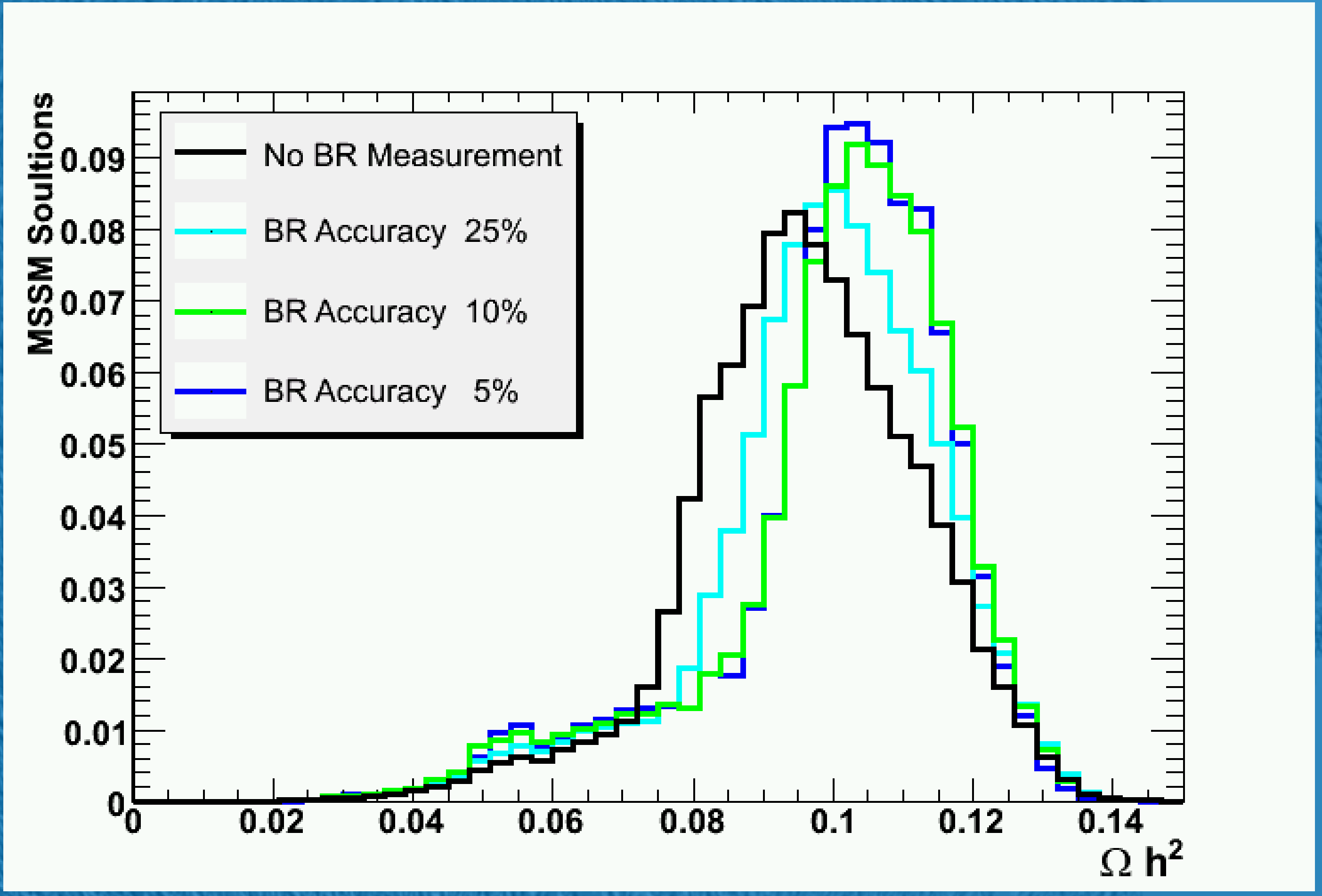


Phys.Rev.D74:103521,2006.

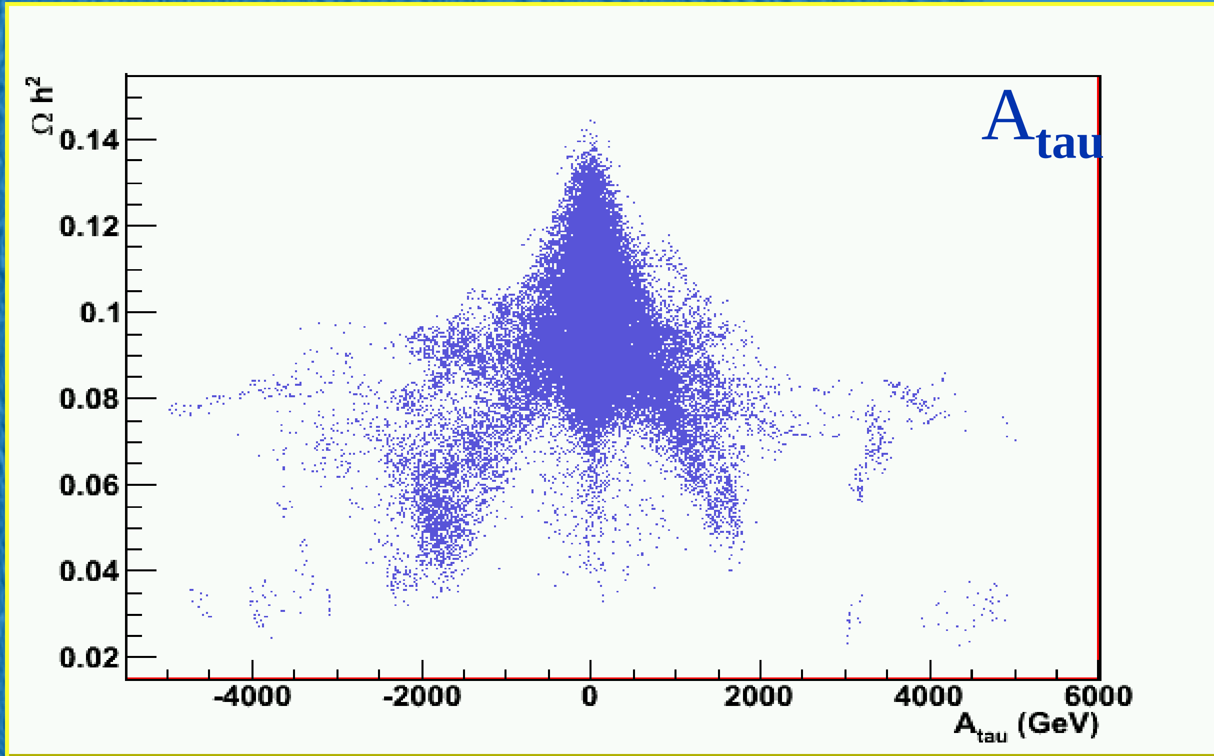
A^0 Branching Fractions



A^0 Branching Fractions



Stau Tri-linear Coupling



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Determining the Stau Trilinear Coupling A_τ in Supersymmetric Higgs Decays

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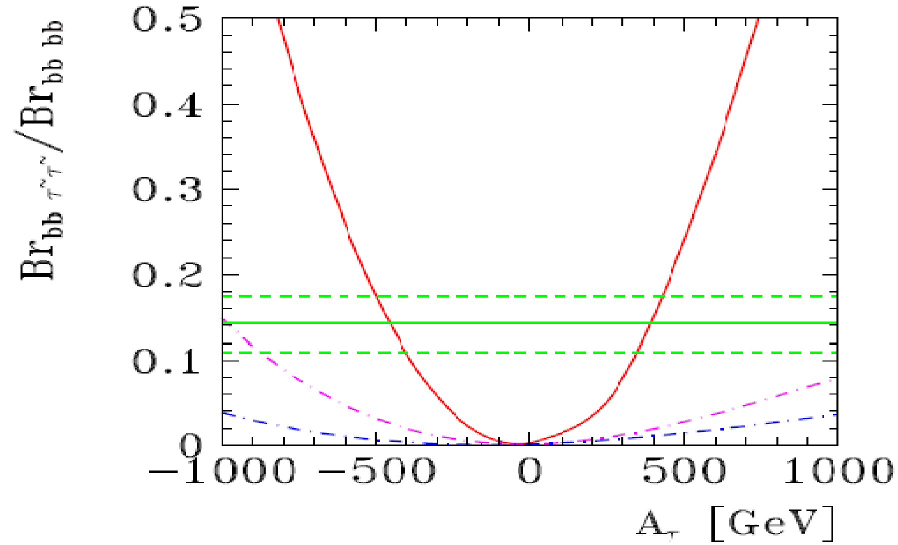
$$\Gamma(H, A \to \tilde{\tau}_1 \tilde{\tau}_2) \simeq \frac{G_F m_\tau^2}{4\sqrt{2}\pi} \lambda^{1/2} \frac{(A_\tau \tan\beta + \mu)^2}{m_{H,A}}$$

but in A annihilation funnel this method unavailable since typically

$M_A < M_{\tau 1} + M_{\tau 2}$

currently investigating global SUSY parameter fit using `Fittino`



DM Density Accuracy for LCC4 at ILC