# $H^\pm$ Benchmark Working Group # 2

## $H^\pm \to$ SUSY and SUSY $\to H^\pm$

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General working assumption: The two-way communication
Theory: think up new final states and their physics
Experiment: analysis of "$\sigma \times$ BR" $\to$ what can be seen
$\Rightarrow$ results can be rescaled for "any" scenario
(new backgrounds? . . . ?)

- $H^\pm \to$ SUSY:
  $H^\pm \to \tilde{\chi}_i^\pm \tilde{\chi}_j^0$ for "complicated" points:
  e.g.: $\tan\beta = 7(15)$, $M_{H^\pm} = 150, 400 \Rightarrow$ analyze the $\mu{-}M_2$ plane
  $\Rightarrow$ derive limits of visibility $\Rightarrow$ what happens "outside"?
  $\Rightarrow$ new channels? new signatures?

- SUSY $\to H^\pm$:
  $\tilde{t} \to \tilde{b} H^\pm$, $\tilde{\chi}_i^\pm \to \tilde{\chi}_j^0 H^\pm$
  Theory: $\sigma \times$ BR? scenarios? final states? backgrounds?
  Generators are ready, but they need input parameters