SUPERSYMMETRY, PART II (EXPERIMENT)

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Remarks from the previous report of the Advisory Committee:

h) The LHC has had a big impact on SUSY and is currently testing the paradigm of SUSY naturalness. The theoretical treatment in the PDG, however, still follows the traditional approach, while experiments are now focusing on searches that are more directly constraining the sectors in charge of the Higgs quadratic divergence cancellation. Accordingly, it would be appropriate that the phenomenological concept of naturalness be developed, including the special role of the top sector in conjunction with the importance of searches for stops and sbottoms.

More for the theory review. Experimental review indeed focuses more on 3rd generation squark searches.

SUSY Experimental part :
Page 9: The analysis in [57] has no veto on photons.
Page 27, last full paragraph: the text mentions an upper bound on the gluino and squark masses, which is equivalent to claim a discovery of SUSY. As the bound disappears when the CL is increased to 99% CL, it's better not to state it. Note that this bound comes solely from gmu-2 and DM relic abundance, and is ruled out by direct searches. This has to be explained better in the next paragraph.

Sections rewritten, caveats about global interpretations and the tensions with LHC data added

Current review:

Written September 2013, significant update of previous review.

Includes 8 TeV LHC results, mostly preliminary.

LHC results now surpass Tevatron limits everywhere.

Interpretations mostly using simplified models, but with warnings on the limitations of the simplified models framework.

Structured following cross sections @ LHC:

- gluinos, first & second generation squarks
- third generation squarks (significant extension)
- charginos and neutralinos (significant extension)
- sleptons

+ summary tables & figures

What's next:

Next run of the LHC at 13 TeV will have big impact on SUSY.

Machine schedule is such that no significant new results can be expected yet by August 2015.

Any update before August 2015 would be the change from preliminary 8 TeV results to final 8 TeV results (numbers, figures, references) without changing the structure or the conclusions.

13 TeV LHC papers expected for Moriond 2016.
Is there any way we can get this in the 2016 review?