Contribution ID: **1** Type: **not specified**

Soft physics and interpretation challenges for LHC supersymmetry searches

Thursday 12 January 2017 09:25 (25 minutes)

As supersymmetry searches confront the LHC energy ceiling, what will shape future searches given the dearth of signals? Discovery opportunity remains in the colourless sector, where lower mass bounds are around 100 GeV for scalar leptons and fermionic Higgs particles. High luminosity will probe their rare production and I will discuss overcoming experimental challenges to detect the low energy 'soft' decay products. Further, how should the rich programme of LHC searches leave an impactful legacy? I will explore theoretical frameworks being developed to interpret experimental results beyond simplified models, be it to characterise new signals or constrain realistic supersymmetry scenarios.

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Session Classification: Parallel Sesion: BSM Phenomenology