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The moment of truth for natural supersymmetry? TAL VAN DAALEN, University of British Columbia — Supersymmetry is still one of the main contenders for generating the new physics needed to solve the many shortcomings of the Standard Model (SM). However, with the pressing absence of any new physics discoveries at the LHC, viable supersymmetric extensions of the SM are progressively being pushed towards unnatural regimes in parameter space. Scenarios with light, higgsino-like electroweakinos with nearly degenerate masses are strongly motivated by naturalness arguments, while still avoiding the reach of conventional supersymmetry searches. I will give a brief introduction into the phenomenology of such scenarios and the role that naturalness plays here, and will then cover a strategy for investigating such scenarios during Run 2 of the LHC and beyond. By looking for signatures with soft leptons in events with a hard jet and sizable missing transverse energy, sufficient sensitivity can be reached to probe largely unexplored regions of parameter space during Run 2 of the LHC and beyond.

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