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Constraining new physics with model-dependent collider measurements

I will discuss methods for testing Beyond-the-Standard-Model (BSM) theories using measurements at particle colliders. This exploits the fact that particle-level differential measurements made in fiducial regions of phase-space have a high degree of model-independence. These measurements can therefore be compared to BSM physics implemented in Monte Carlo generators in a very generic way, allowing a wider array of final states to be considered than is typically the case. I will show applications of the method to generic Dark Matter, light scalar and other simplified extensions of the Standard model, and discuss future prospects.

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