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An Update on the LHC Monojet Excess

Monday 21 May 2018 12:00 (30 minutes)

While the LHC has done an excellent job of looking for new physics in all the expected places using simplified models, so far much less attention has been paid to model-independent, data-driven approaches. I will review a recently proposed method of "rectangular aggregations" that can find potentially interesting excesses in existing LHC searches without relying on simplified models. As a proof of concept, I will show how the method uncovers some highly statistically significant (and previously overlooked) discrepancies in the low-pT regions of ATLAS and CMS monojet searches. I will describe a simplified model that fits the monojet excess well, and discuss its implications. I will also discuss various issues with the background estimation and the control regions which may provide a SM explanation for this discrepancy. Regardless of whether this discrepancy is due to new physics or missing SM effects, there are interesting things going on in the monojet channel, and more generally, in the overlooked bulk of the LHC data.

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