Recasting activities at LH2017

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Abstract
We examine Recasting activities at LH2017.

1. INTRODUCTION

1.1 General Activities

- Feasibility study of the implementation/portability of complicated MVA techniques (BDT, NN,) into the analyses
- Improvement of results and recastability: how to provide correlations signal systematics, possibility of providing a few key observables unfolded.
- Comparison of between DELPHES results and simple object smearing.
- Trying out the use of particle-level measurements to constrain model models

1.2 Formats

Object efficiency tables : which format (HEPDATA?)

1.3 Benchmarking/Comparisons

- Implementation of analyses of increasing complexity in the Analysis Description Format (LHADA Proposal) and in (BSM) Rivet and their comparison.
- Choose an analysis of ATLAS or CMS which has cutflow and detector effects provided in some form, and possibly is already been implemented in the recasting codes CheckMate/MadAnalysis/Rivet/ATOM/.
- Implement the same analysis in LHADA and then use the dedicated parsers to provide the analysis for the recasting codes.
- Reproduce the NP interpretation of the original paper (=validation implementation).
- Recast the analysis for an other new physics model and compare the results.
- Go to point one and choose a more complicated analysis

it would be interesting to see how Delphes performance looks without analysis-specific cards, since a lot of people (outside the big recasting groups) are using it that way.

1.4 How to validate the analyses

1.5 Analysis proposals

1.51 arxiv:1605.03814 - Jets+MET - ATLAS - 13 TeV

Experimental cards ¿ Ben. The procedure for event generation is depicted multijet.pdf (Section 02), the three parameter$_c ardsaregivenparam_c ards.tgzandthePythiaconfigurationfilesarepy8_scripts.tgzPlotconditions$: $HEPMC(afterjetclustering), HEPMC+cuts, HEPMC+Detectoreffects, HEPMC+Detectoreffects+$

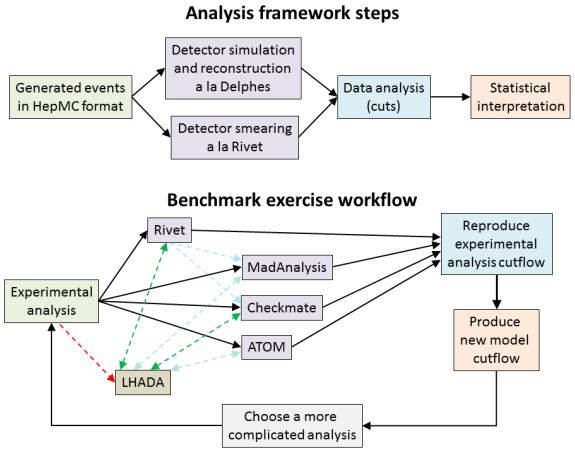

Fig. 1: Search reach for the $\mu\gamma\not{E}_T$ signal (as defined in the text) for 300 fb^{-1} integrated luminosity at the LHC.

$cutsPlots : pTof1j, 2jand3j, andMET : range[0, 1]TeV, 50binsPlots : etaof1j, 2jand3j : range[-5, 5], 20binsAna$
$Tables1-7inhttp : //atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/PAPERS/SUSY-2015-$
$06/100KHepMCeventswithMG5_aMCLO, masses : gluino1600, N10 > Olivier+Nishitahttps :$
$//cernbox.cern.ch/index.php/s/3Ci4I2cgQmKwDXtResults : here?KHepMCeventswithMG5_aMCLO, masse$
$gluino1100, N1700 > Olivier+NishitaResults : hereLHADAimplementation : https : //github.com/lhada-$
$hep/lhada/tree/master/analyses/ATLASSUSY1605.03814$

1.52 arxiv:1704.03848 - Monophoton - ATLAS - 13 TeV

Cutflow: https://atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/PAPERS/EXOT-2016-32/

1.53 CMS-SUS-16-039 - 3 leptons + MET - CMS - 13 TeV

- (Now superseded by paper: http://cms-results.web.cern.ch/cms-results/public-results/publications/SUS-16-039/index.html) (BDT with 15 inputs; eff. 20-90

1.54 arxiv:1706.04402 - 1 lepton + MET + Jets (¿=1b) - CMS - 13 TeV

(topness variable?)

2. Results

CONCLUSIONS

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References