

Cambridge FCC meeting: FCC-hh updates

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Introduction

- Goal is to check the impact of pileup on FCC-hh, mainly looking at VV
 - Started by looking at VBF WW (mg_pp_vbf_ww_lvlv_5f_84TeV), mainly to check if I could run the framework

✓ **mg_pp_vbf_ww_lvlv_5f_84TeV**

Campaign: not-defined Detector: not-defined File type: lhe N-events: 1000000 Cross-section: 11.87 Matching-eff: NONE Updated: 8 Oct 2026, 19:01 BST

Metadata (13 fields) Created: 3 Sept 2025, 09:21 BST [α4ba4545-e4f9-5da2-b050-722c4431460f](#) [Link](#) [Edit](#)

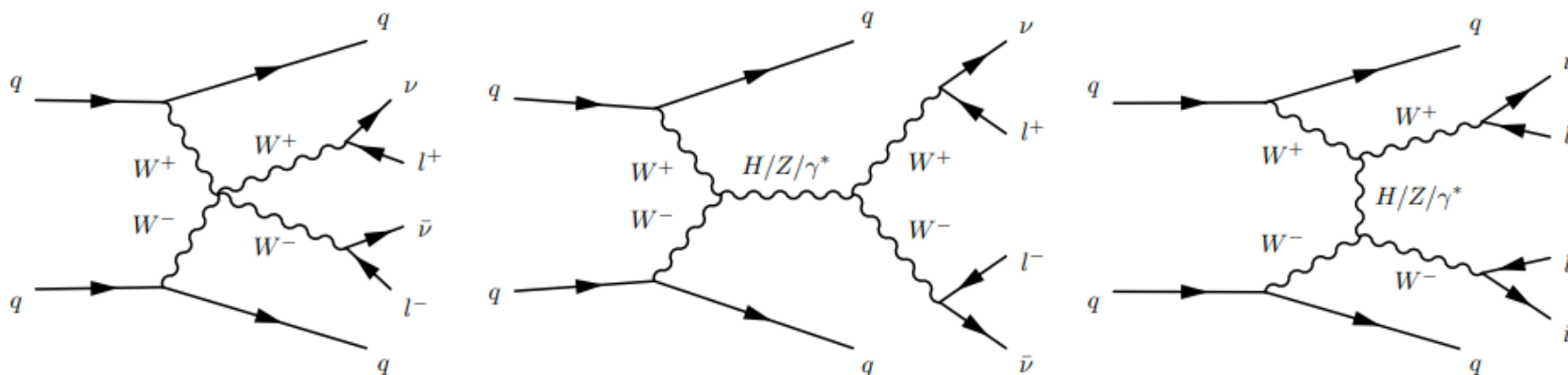
Comment		Description	
WW→lvlv, incl taus		VBF WW full process - including H, continuum and interference @ 84 TeV	

A Status	# Cross-section	# N-events	# N-files-bad	# N-files-eos	# N-files-good
done	11.870	1000000	0	100	100

# Size	A Gen-type	A Matching-params	A Produced-with
0.35 GiB	mg	No Jet matching	event-producer

A Path

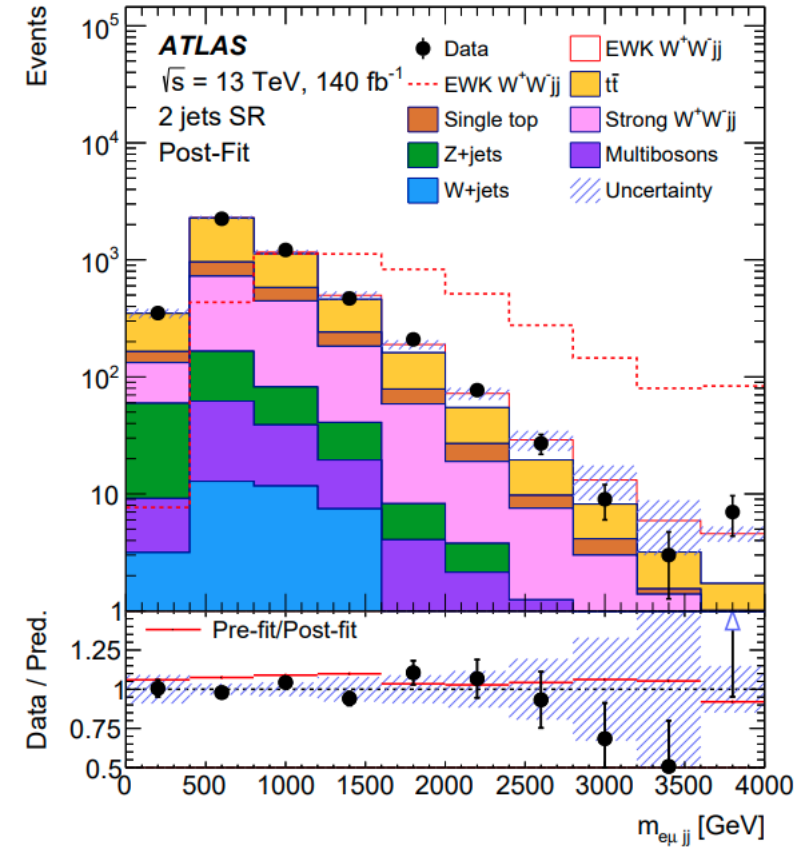
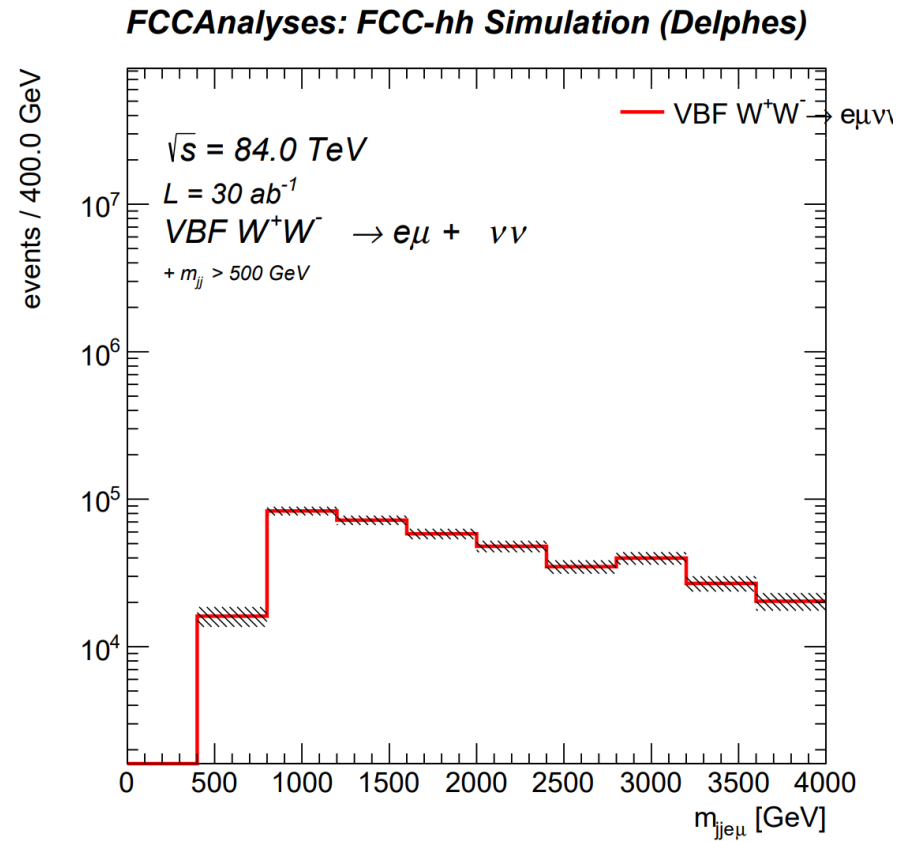
/eos/experiment/fcc/hh/generation/lhe/mg_pp_vbf_ww_lvlv_5f_84TeV/



- Running Delphes on the MG LHE sample:
 - `source /cvmfs/sw.hsf.org/key4hep/setup.sh -r 2026-04-08`
 - Following [this tutorial](#)
- Using DelphesPythia8_EDM4HEP from [k4SimDelphes](#) using a [Pythia Card](#) (adapted from the [tutorial card](#))
- [Pre-selection](#) (mimicking the [VBF H->WW selection](#)):
 - $1\ e, 1\ \mu$ OS, $p_T > 10\ \text{GeV}$, $|\eta| < 4$
 - At least 2 jets with $p_T > 30\ \text{GeV}$
- [Final selection](#) (mimicking [ATLAS Run 2 VBF WW paper](#)):
 - $p_T(\ell) > 27\ \text{GeV}$, $m(e\mu) > 80\ \text{GeV}$
 - $\text{MET} > 15\ \text{GeV}$
 - b-jets veto
 - $N_{jets} = 2$
 - $m(jj) > 500\ \text{GeV}$
 - Lepton centrality $\zeta > 0.5$

This analysis

ATLAS paper ([arXiv.2403.04869](https://arxiv.org/abs/2403.04869))



Similar shape between the two

Next steps

- Run using a different [Pythia Card](#) which has PileUp turned off
- Then turn PU on and check impact on physics observables

Thank you for your attention

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