

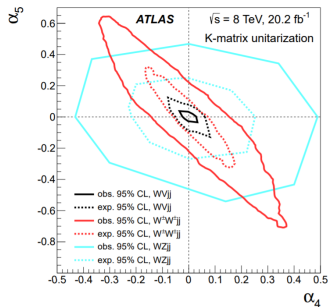
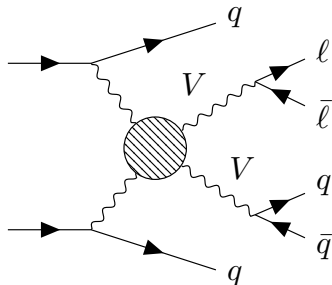
Analysis Overview

Analysis:

- Search for electroweak production of $VV + 2j$
- Use semileptonic channels ($llqq$, $lvqq$, $\nu\nu qq$)
 - Exploits larger branching fraction \rightarrow more statistics in tails
 - Showed best sensitivity to aQGC in Run-1
- HL-LHC study with 300fb^{-1} and 3000fb^{-1}
- HE-LHC at 27TeV

Projections on:

- Cross-section precision on EWK VBS
- Limits on aQGC



Analysis Strategy

- 3 orthogonal channels based on number of tight leptons
 - For HL-LHC may focus on $\ell\nu qq$ channel
- Hadronic decay is reconstructed as either:
 - Two $R=0.4$ jets (resolved channel)
 - One $R=1.0$ jet (merged channel)
 - Remove pile-up contribution with trimming
 - Use p_T depended W/Z -tagger in combined mass and $D_2^{\beta=1}$
- Systematics derived from conservative estimates based on 13TeV analysis
- Backgrounds:
 - Main: V +jets, $t\bar{t}$
 - Minor: single- t , SM VV , Multi-jet
- Signals:
 - SM electro-weak VBS
 - aQGC

Current Status:

- HL-LHC studies
 - Analysis and interpretation tools ready
 - All simulated samples ready minus aQGC signal
- HE-LHC studies
 - Privately producing MC
 - Comparing DELPHES with ATLAS smearing function
- This analysis runs concurrently with overlapping exotic diboson resonance search

Manpower:

- 2 PhD students, 1 researcher, 1 faculty
 - Tatsumi Nitta, Robert Les, Viviana Cavaliere, Koji Terashi
- All very active