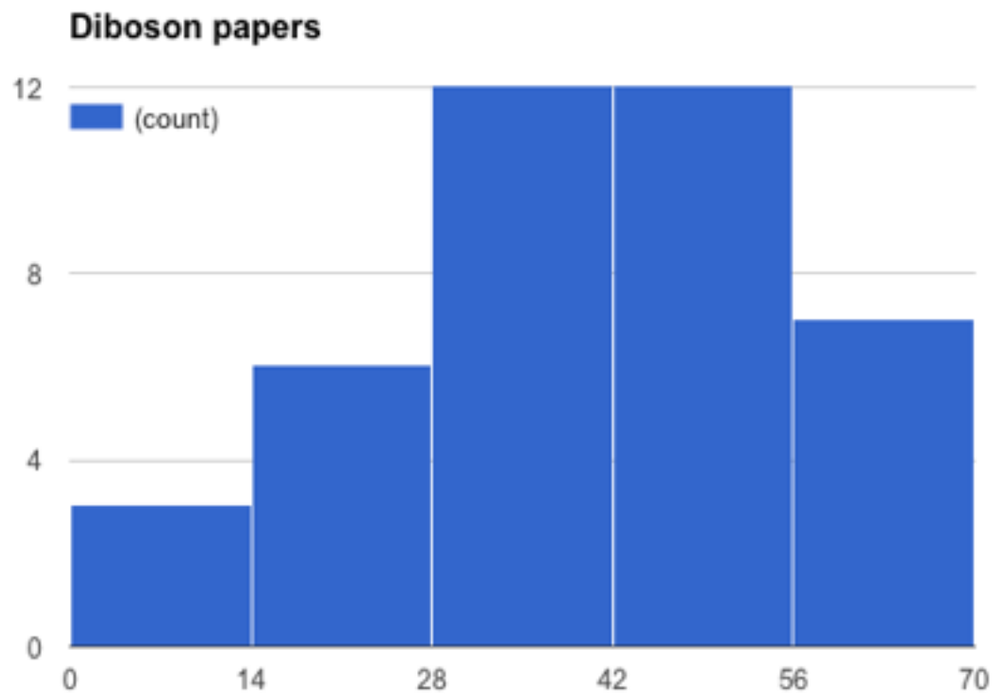
Plausibility of new physics



40+ theory papers already cite ATLAS/CMS diboson results

Narrow (?) resonance at 2 TeV with $\sigma_{WZ} \approx 3 - 10$ fb

- Boson (spin-1) coupling to quarks
- Charged resonance - largest deviation from SM in *WZ* analysis, constraints on *WW* from lνjj channel

Left-right gauge symmetry

$$SU(2)_L \times SU(2)_R \times U(1)_{B-L}$$

$$W' \quad g_R \sim 0.5$$

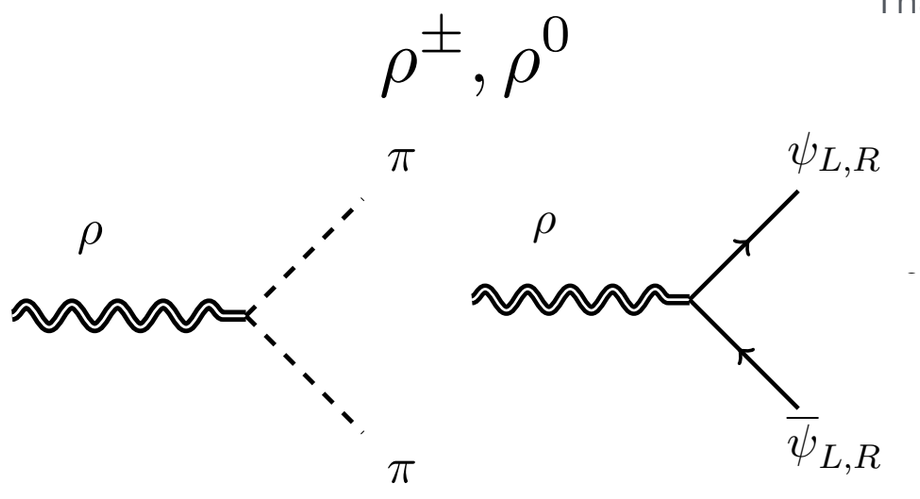
- Heavy right-handed neutrinos
- Heavier Z' $(m_{Z'} \sim 3 - 4\ \mathrm{TeV})$ gets around dilepton constraints

Small branching into dibosons, large couplings to fermions

Motivations: some GUTs, SM parity, other excesses?

Composite resonance in composite Higgs models

Thamm, Torre, Wulzer
Bian, Liu, Shu
Low, Tesi, Wang



Large branching into dibosons, Small couplings to fermions*

*model-dependent

"Natural"

$m_\rho \simeq g_\rho f$ = 2 TeV

3-4

$\gtrsim 600$ GeV (Higgs couplings)

Boosted dibosons

- Resonance goes dominantly into longitudinal modes
- Equivalence theorem requires similar branching to *Wh*