

Measuring the Standard Model with W bosons

Valerie Lang

FH Fellow Meeting, 27.02.2018



About Me

My background

Origin

- Grew up in Bensheim at the Bergstraße, Germany



Diploma in Physics from the Ruprecht-Karls-Universität, Heidelberg, 2010

- Worked on precision synchronization of the Level-1 Calorimeter Trigger of ATLAS

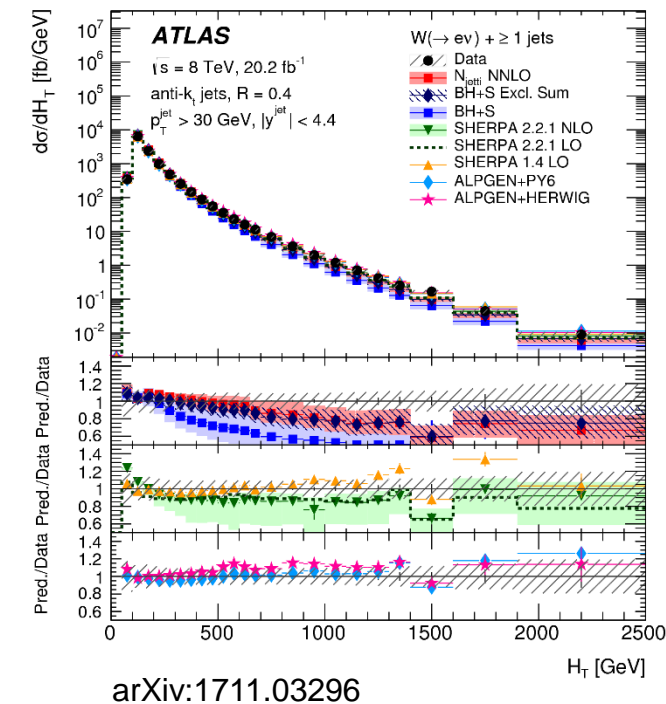
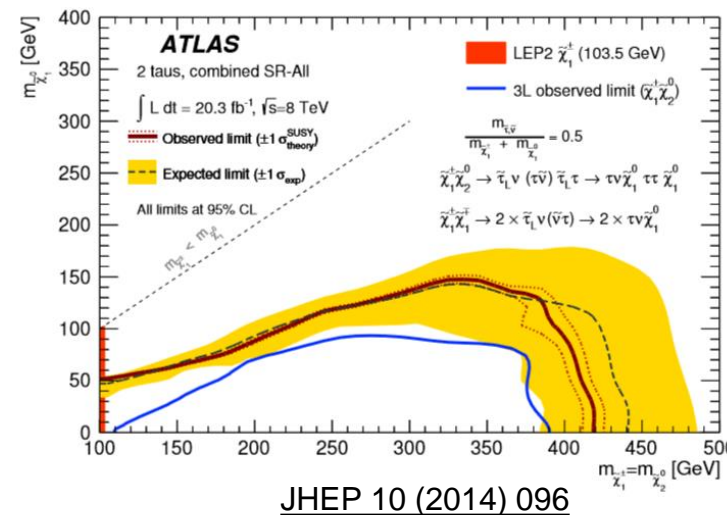
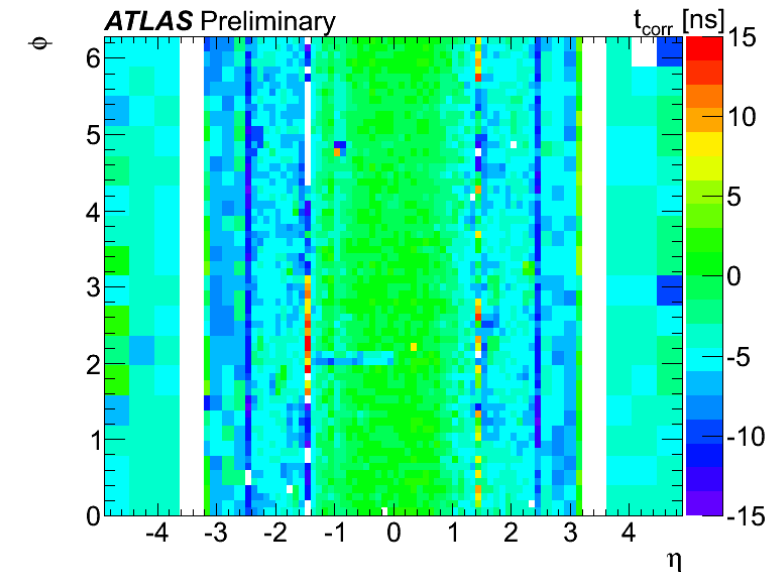
Doctoral degree (Dr. rer. nat.) from the Ruprecht-Karls-Universität, Heidelberg, 2016

- Searched for electroweak production of SUSY with two hadronically decaying taus
- Measured W +jets production and $(W^+ \text{ +jets})/(W^- \text{ +jets})$ ratio (thesis topic)

Postdoc in Heidelberg, 2017

- Wrapped up W +jets measurement

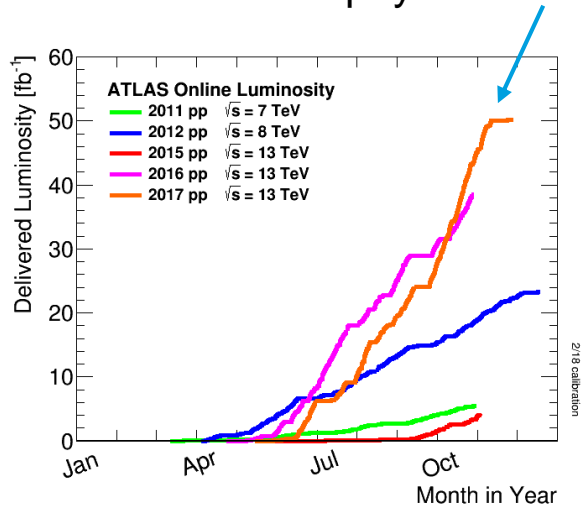
→ DESY Fellow since April 2017



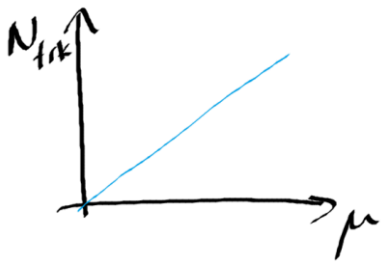
My Current Work

Activities and challenges

Measuring the luminosity recorded by ATLAS → Good for physics

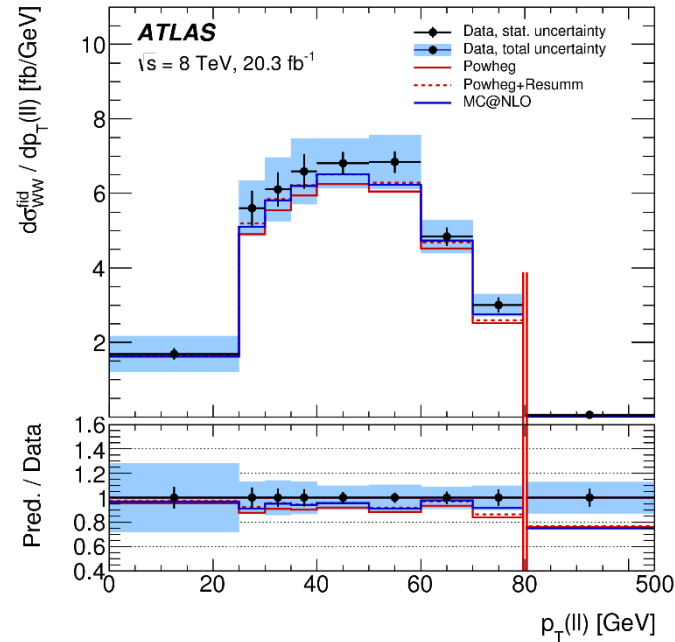


Use track counting



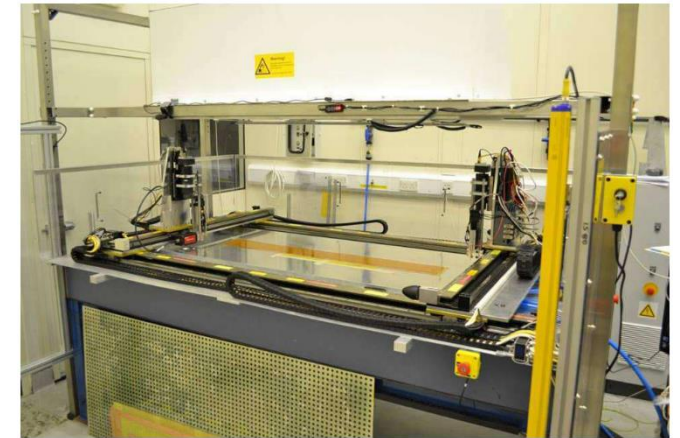
Luminosity ~ number of tracks, **if** good track selection

Measuring WW production differentially at $\sqrt{s} = 13\text{TeV}$



Look into new highest order predictions
 → See if discrepancies observed at $\sqrt{s} = 8\text{TeV}$ are under control now
 → Challenge: Jet veto

Transfer signals to and from modules to on-detector electronics in ATLAS ITk
 → Bus-tapes



Test signal transmission through bus-tape at different stages of petal production → Get robotic tape tester

My Favourite Plot

The power of measuring ratios

