

April 25, 2023 (Week 13)

Experimental HEP Analyses

Objectives:

- Become familiar with the structure of the ATLAS collaboration
- Learn how to find information about ATLAS analyses
- Begin learning the steps involved in an analysis

Outline:

- Structure of the ATLAS Collaboration
- Glance
- Internal documentation
- ATLAS public results
- ATLAS author list
- Overview of analysis ingredients
- Blinding
- Monte Carlo
- Data formats/flow

Homework - due May 2, 2023:

1. Prepare/present slides about an ATLAS analysis
 - Sign up for 1 analysis [here](#)
 - Prepare slides:
 - Metadata - when was it finished, which dataset, where to find information, where is it published, which physics group, etc.
 - Theoretical motivation
 - List of signal samples and major backgrounds
 - Objects used
 - Event selection strategy
 - Signal, validation and control regions
 - List of systematic uncertainties
 - Statistical analysis
 - Results
 - You will be asked to present your analysis in class on May 2