

The Particle Physics Masterclass

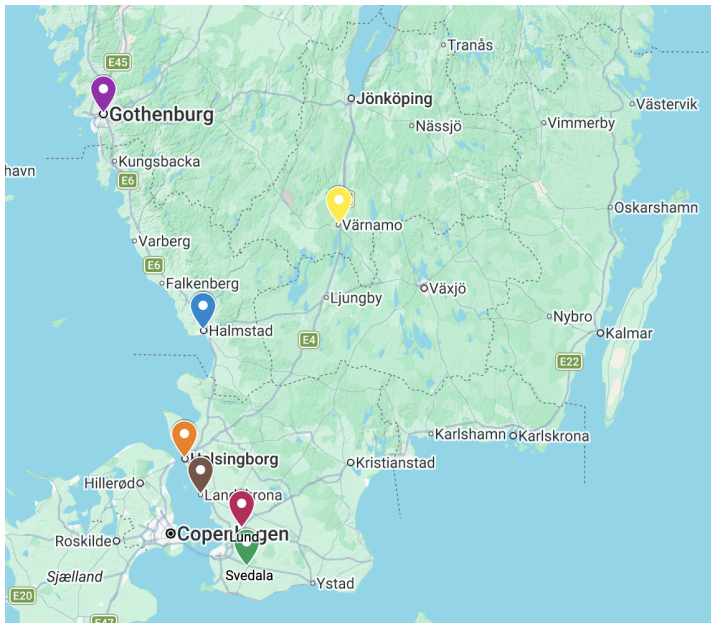
Alice Ohlson & Korinna Zapp

PKF PhD day, 17.06.2026

The Particle Physics Masterclass

- ▶ target audience: 3rd year high school students
- ▶ coordinated by CERN
- ▶ students come to LU for a day
 - ▶ morning: lectures
 - ▶ afternoon: look for the Higgs in ATLAS data
 - ▶ video conference with CERN and other groups
- ▶ we usually do it twice per year
- ▶ 15-40 students per day

Where our students came from this year



The aim: Become a particle physicist for a day

- ▶ learn about modern ideas in particle physics from active researchers
- ▶ apply what they have learned in school
- ▶ experience research: analyse real ATLAS data
- ▶ collaborate with other students from Sweden and abroad
- ▶ visit LU
- ▶ meet students & researchers
- ▶ discuss work and careers in particle physics

A typical Masterclass day

- 9:00-9:15 welcome and introductions
- 9:15-10:00 theory intro (Johan R)
- 10:00-10:20 fika
- 10:20-10:50 experimental intro (Hannah H)
- 10:50-11:20 BSM/cosmology (Roman P)
- 11:20-12:00 intro to the masterclass (Alice O) & buffer time
- 12:00-13:00 lunch
- 13:00-15:00 computer exercise
- 15:00-15:30 fika
- 15:30-16:00 discussion of computer exercise results
- 16:00-17:00 video conference with CERN
- 17:00-17:30 closing

Tue, Mar 03

VC 1: ATLAS Z

16:00 CET

Alexander

Shalini

Graz



Lund



Trieste



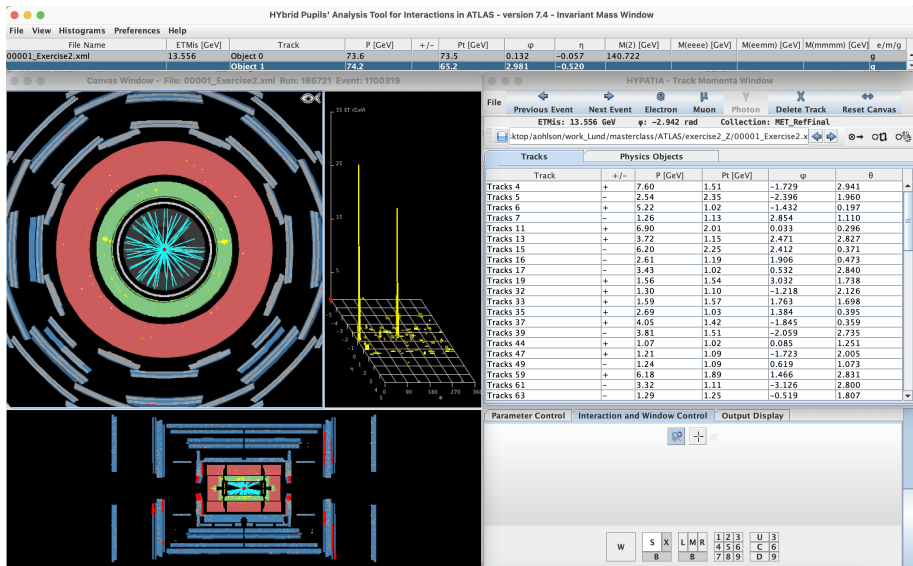
Heidelberg



Prague, Charles
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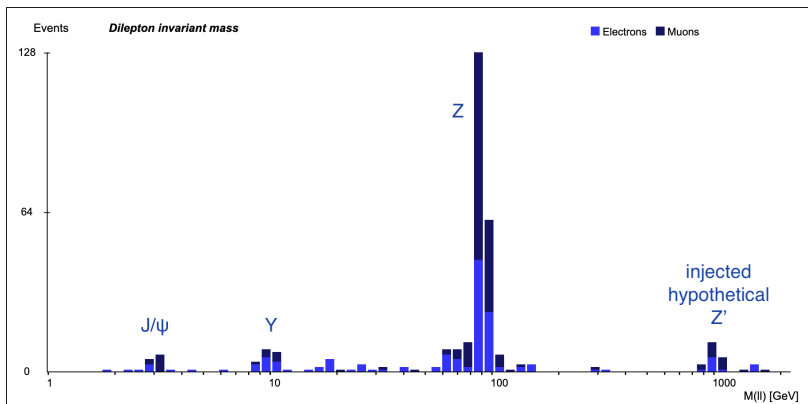
Finding the Higgs in ATLAS data



<https://atlas.physicsmasterclasses.org/en/zpath.htm>

Finding the Higgs in ATLAS data

- ▶ each student pair analyses ~ 50 events
- ▶ histogram invariant mass of photon and lepton pairs
- ▶ combine results from all LU students
- ▶ combine results with other groups abroad



How to get involved

Volunteers needed:

- ▶ lectures
- ▶ computer exercise/data analysis
- ▶ meet and talk to students
- different levels of engagement

It is a lot of fun!

- ▶ it is very rewarding
- ▶ students (and teachers) are interested and enthusiastic
- ▶ makes us think of good sides of our work

“Tack för att vi får möjlighet att återigen anmäla elever till mästarklassen i partikelfysik. Förra året fick tre elever vara med på mästarklassen och idag studerar två av dem fysik och den tredje studerar matematik på LTH.”