

PhysTeV 2023 - session 1



Welcome!

PhysTeV: history in a nutshell

A series of workshops that started in 1999. This is the 12th edition

- 1999: 65 participants, 1 session, 2 weeks
-
- 2005: ~170 applications, 3 weeks
- 2007: ~300 applications
- 2009 - today: 200-250 applications, 2 sessions
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- 2021: covid! → only few zoom sessions
(+ “wishlist” update + “unbinned differential cross sections”)
- 2023: Finally 🎉🎉🎉

Aim and format of the workshop

- Bringing together **theorists and experimentalists** working on several aspects of phenomenology at TeV colliders and other experiments.
- Collaborations, intense discussions and brainstorming. Formal talks kept to a minimum, **informal presentations encouraged**.
- **Unique opportunity**: ~10 days of informal TH/EXP discussions facing Mont-Blanc.
- There's no predefined agenda: feel free to suggest new ideas!

- *“important cornerstone of our field!”* , *“...Les Houches has truly made a difference to our field”*



Avoid a succession of formal, normal talks!



Les Houches Spirit





Les Houches Spirit



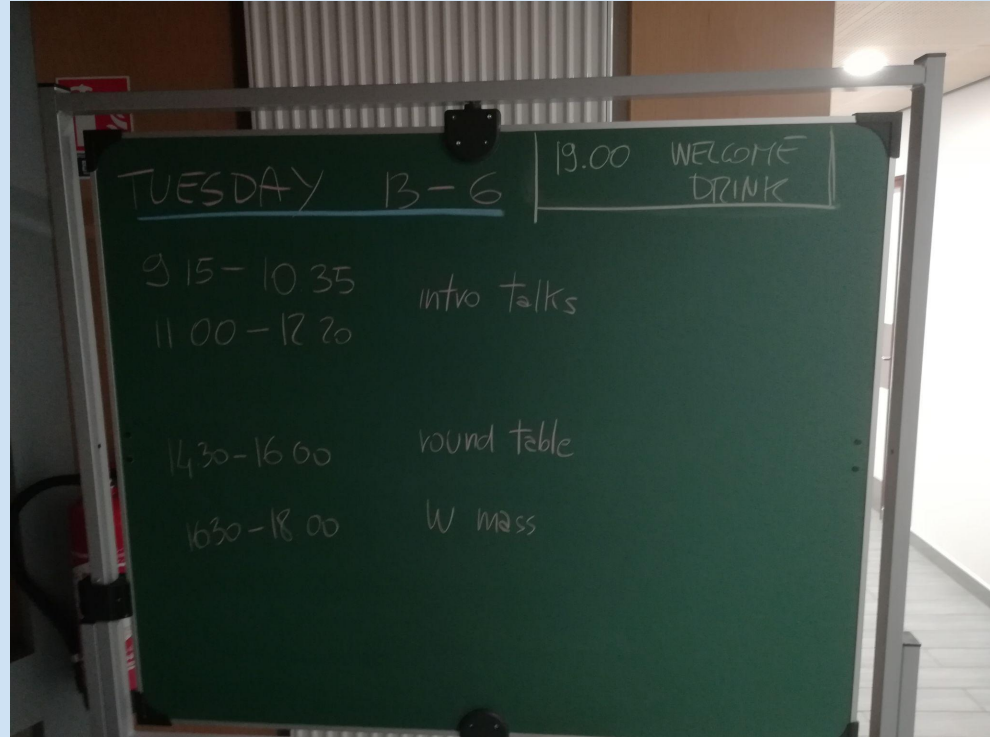


SOUVENIRS

JUN 15 2007

Programme

- Updated daily: check the wiki pages, and the board in the entrance hall, close to the auditorium
- The success of the workshop ultimately depends on you....
- Discuss, brainstorm, have fun!



Thanks to the conveners for their role!

2023:topics

List of topics for 2023

(accessible to everyone, editing rights to conveners and organizers)

Table of Contents

- List of topics for 2023
 - Session 1
 - Session 2

Session 1

Techniques and calculations for SM phenomenology:

- Calculations/tools:
 - expected precision for fundamental Standard Model processes at 14 and 100 TeV; what calculations are needed to match this precision?
 - NNLO and N3LO; status/challenges/prospects
 - theory uncertainties; more rigorous estimates? correlations? In particular, theory uncertainty for EW corrections?
 - usage of NNLO results; grids seem to be a real bottleneck now for precision work
 - resummation in analytic and parton shower calculations
 - uncertainty for 'softly-vetoed' distributions
 - comparisons of jet veto calculations
 - tuned comparison of NLL parton showers; sub-leading power corrections
- PDFs:
 - followup on PDF4LHC21 benchmarking exercise; better understanding of tolerances, tensions
 - EW corrections/EW PDFs; how to provide consistent calculations (lepton definition with QED effects)
 - Electron-ion collider (EIC); what will EIC tell us? how do we prepare for that?
 - N3LO PDFs; how firm are changes to the gluon, and what should be done for benchmark Higgs cross sections; progress on splitting functions
 - PDF uncertainties, i.e. hopscotch vs Monte Carlo sampling
 - intrinsic charm
 - theory uncertainties/correlations in fit. Double counting?
 - quark-gluon discrimination for PDF determination
- Higgs:
 - understanding the SM for high Higgs p_T ; role of top mass corrections/scheme (MSbar vs on-shell); how to improve channel sensitivities;

| | | | |
|-------------|---------------|-----|-------------------------|
| 12h30-14h30 | Lunch break | | LH Restaurant |
| 14h30-16h00 | Round Table | All | Auditorium |
| 16h00-16h30 | Coffee break | | Lounge in Main Building |
| 16h30-18h00 | W mass | | Auditorium |
| 19h00-19h30 | Welcome Drink | | LH Restaurant |
| 19h30- | Dinner | | LH Restaurant |

Wednesday 14 June

| | | | |
|-------------|---|------|------------|
| 09h00-11h00 | Jet flavour discussion with short talks | xxxx | Auditorium |
| 11h00-12h30 | VBF studies | xxxx | Auditorium |

Thursday 15 June

| | | | |
|-------------|--|------|----------|
| 09h00-10h00 | Grids | xxxx | QCD room |
| 11h00-12h30 | Fiducial multiboson cross sections (VBF/VBS) | xxxx | QCD room |

Friday 16 June

| | | | |
|-------------|------------------|------|----------|
| 09h00-10h00 | EW uncertainties | xxxx | QCD room |
|-------------|------------------|------|----------|

Sunday 18 June

Wiki pages - slack - wifi

- you should all have a wiki account, right?
- `2023:participants:start` : access to emails and mailing lists for session 1
- editing rights within the WG webpages: `2023:groups:smhiggs:start` ,
`2023:groups:smpheno:start` , `2023:groups:smjets:start` , `2023:groups:smttools:start`
- if needed, I'll give you credentials to modify also the main public pages.
- WGs are not carved in stone: if you want to be added/removed, drop me a line
- Slack channel: check here → `2023:participants:use_wiki_2023`
- **Eduroam & wifi-campus**: contact us if you have problems

Discussion rooms

- Auditorium: 70 people
- “QCD” room: ~20 people
- Library: max 30 people

→ For massive chairs re-arrangements, let us know.

Projectors: ask local organisers (Emanuele, Cedric)
Library and auditorium equipped.

Room booking: use the board outside the auditorium + wiki

Discussion rooms and corners



Library

QCD room

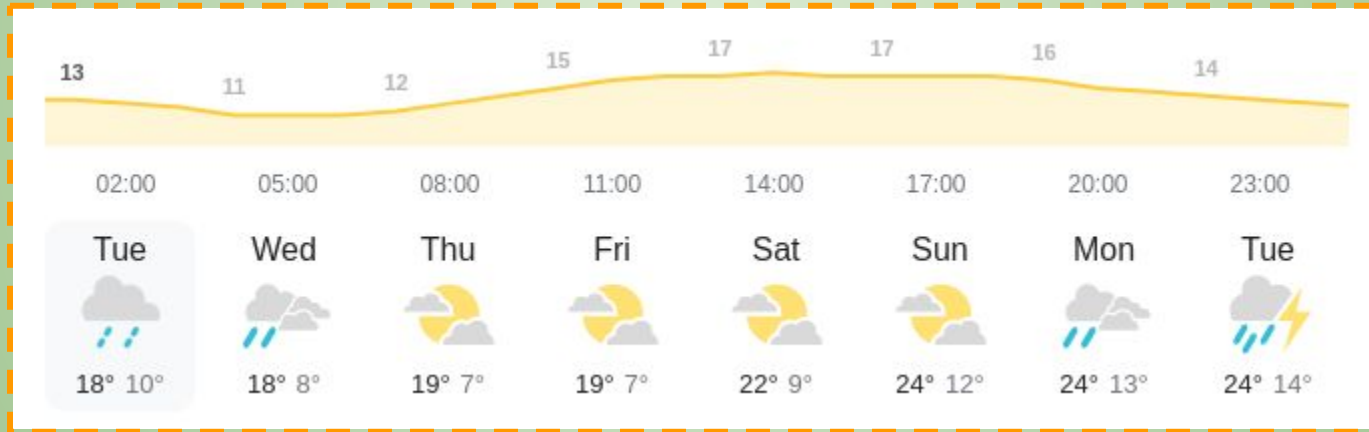




25.06.2009

Weather

- You have all arrived dry!
- Forecast:



Weather

In a letter to DeWitt-Morette, Freeman Dyson wrote:

*“As I remember it, the school was an overwhelming experience. We were sharing every waking hour with a bunch of ebullient young people ... But the lectures were the least important part of the school. **Much more memorable were the informal sessions, the meals and the walks, the daily hardships of mud and rain we all shared ... We all lived together in a cowshed and gave lectures in a barn ... living together under primitive conditions is a wonderful way to make friends. **Bad weather makes friendships closer.**”***

Restaurant, coffee breaks, Bar

- Breakfast: 7.45-8.45
- Lunch: 12.30 SHARP. Coffee/tea free after lunch, at the restaurant.
- Coffee breaks: coffee/tea free, wash your cup.
Sodas **not free**, settle the bill with the secretary before departure!
- Dinner: 19.30 SHARP. A bottle of wine per table is offered.
After dinner: bar + table tennis, table soccer, piano, chess
Have fun, have a few beers → **A18 situation!!!**
- Lunch boxes: order them the night before (notebook in the restaurant)

Welcome drink: today 19.00 @ Bar

Monday 19 June: workshop dinner



The "A18" situation



Les Houches Spirit



Secretariat at the Centre

Open 08.45 - 12.30 and 13.30 - 17.30 (closed during weekends)

Emergency contacts:

1. **Emanuele (FR):** check wiki pages
2. **Emanuele (IT):** check wiki pages
3. **Cedric (FR):** check wiki pages
4. **Philippe (FR):** check wiki pages
5. **Serious emergency: Patrick Mendes (caretaker): +33 6 78 98 52 40**

[info updated on the wiki pages]

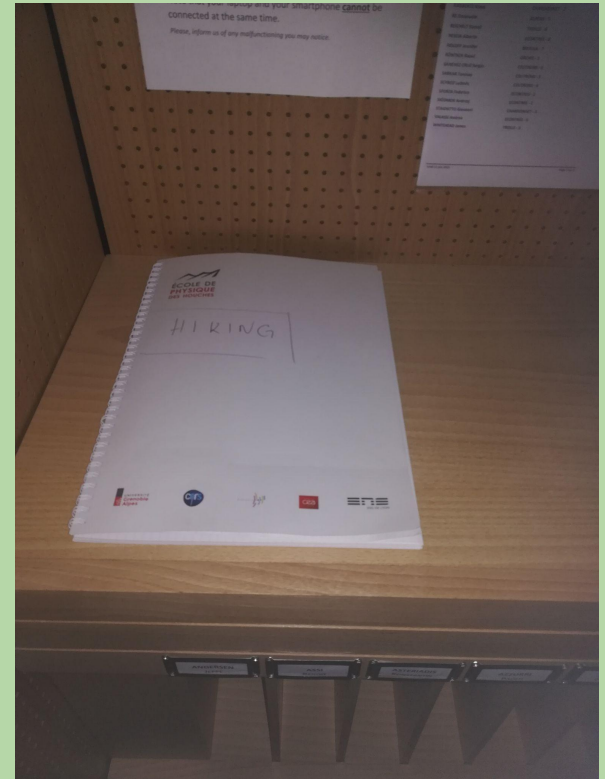
Outdoor activities

- We are in a quite spectacular place, enjoy it.
- Hiking and mountain-biking possible

Mountain activities are at your own risk!

Before any hike or climb, please put a note in the log book by the pigeon holes:

- participants, itinerary, planned return time.
 - write down your mobile phone number.
 - If possible, inform an organiser.
- Sunday (or Saturday) will be a day off



Thanks to...

As organisers, Cédric, Björn and I have to thank:

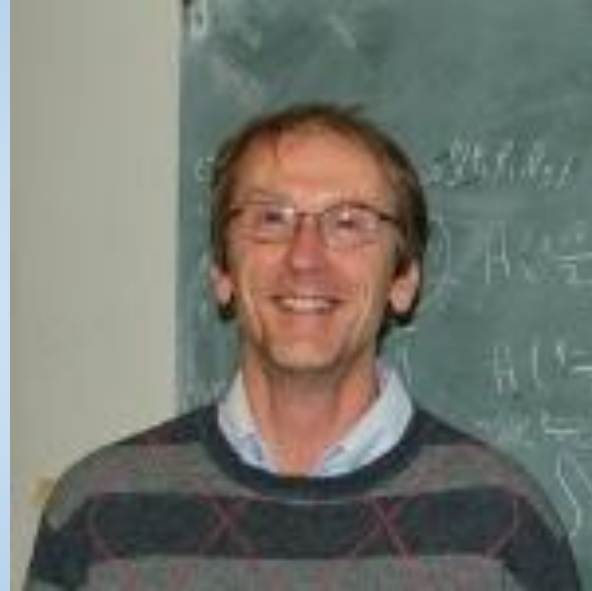
- Dominique, Véronique, and Virginie at LAPTh
- Elsa, Marina and Isabel here at the Ecole

...but, first and foremost...

A huge thank you goes to:



Fawzi



Jean-Philippe

In memoriam: Éric Pilon, CNRS researcher at LAPTh



Merci Éric!

Enjoy the workshop!