

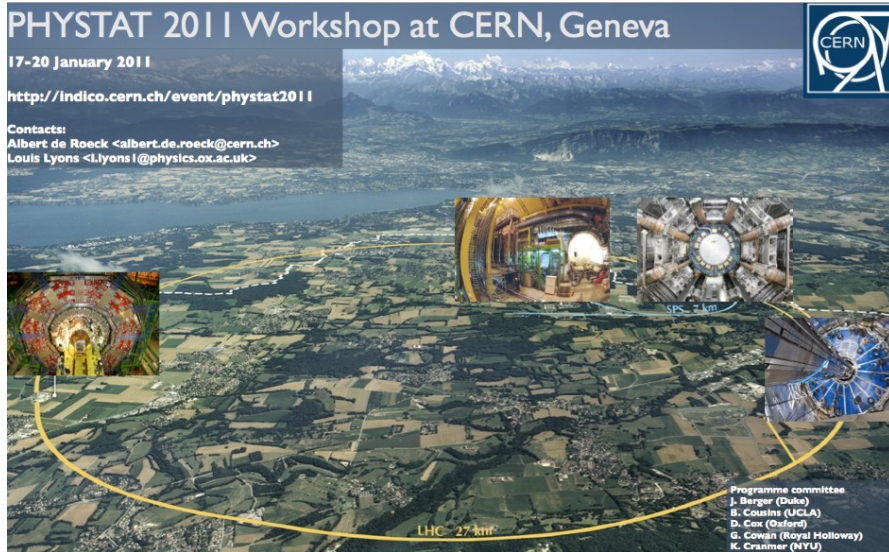
WELCOME TO PHYSTAT 2011

Louis Lyons

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PHYSTAT 2011



With the help of



This meeting is a follow up to the PHYSTAT-LHC meeting at CERN in 2007

<http://physstat-lhc.web.cern.ch/physstat-lhc/2008-001.pdf>

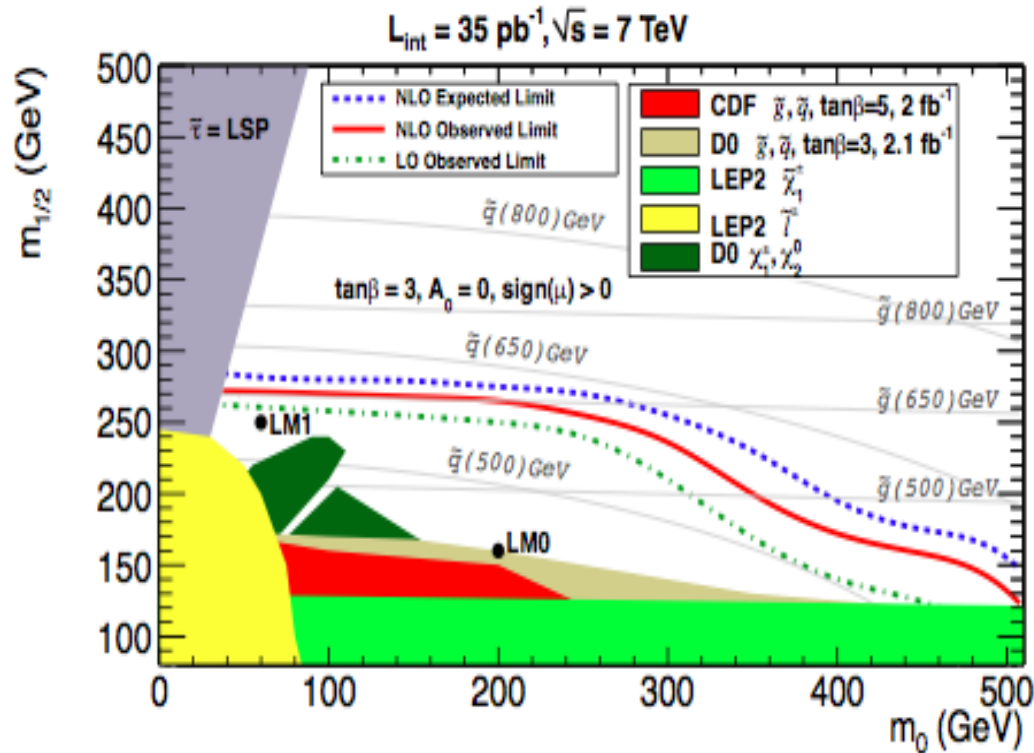
and to the recent Banff Workshop on statistical issues related to discovery claims

<http://www.birs.ca/events/2010/5-day-workshops/10w5068>

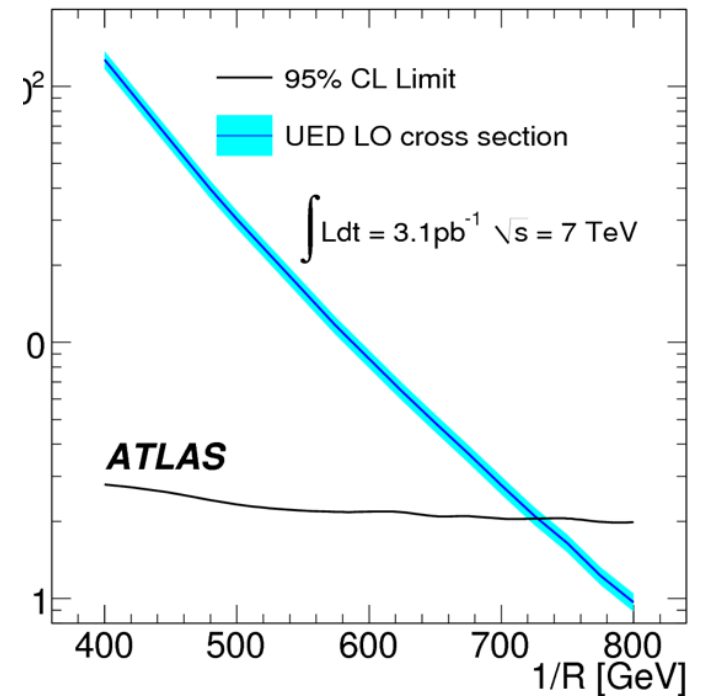
- The first three days of the meeting will deal with the statistical issues related to discovery claims in search experiments, concentrating on those at the LHC. Topics to be dealt with will include model selection methods, inclusion of the effects of systematics, the 'Look Elsewhere Effect', practicalities of estimating significance, whether 5 sigma should be a universal criterion for discovery, sensitivity of searches, experience from earlier experiments, etc.
- The last day of the meeting, January 20, will be dedicated to a 1-day Workshop focused on unfolding detector resolution from experimental distributions
- Following PHYSTAT, on Jan 21 there will be a meeting on "Progress on Multivariate Data Analysis with TMVA"

LHC Experiments: Searches

Supersymmetry



Universal Extra Dimensions



LHC data are there!

Limits so far... (discussions at PHYSTAT 2007)

Machine Prospects

S. Redaelli « LHC report » 17/12/2010

Goal: 1 fb⁻¹

✓ **Energy: 3.5 TeV to 4 TeV**

To be decided at the Chamonix workshop in Jan. 2011.

✓ **Bunch intensity**

Baseline 1.2×10^{11} protons, higher possible from injectors.

✓ **Number of bunches**

450 to 930 bunches (75 ns spacing): potential **factor 2**.

✓ **Colliding beam sizes**

Maintain excellent beams from injectors: **50% smaller** than nominal
Possible to “squeeze” beams further: another **50% gain!**

✓ **Peak luminosities in the range of 6 to 16 x 10³² cm⁻²s⁻¹ could be possible.**

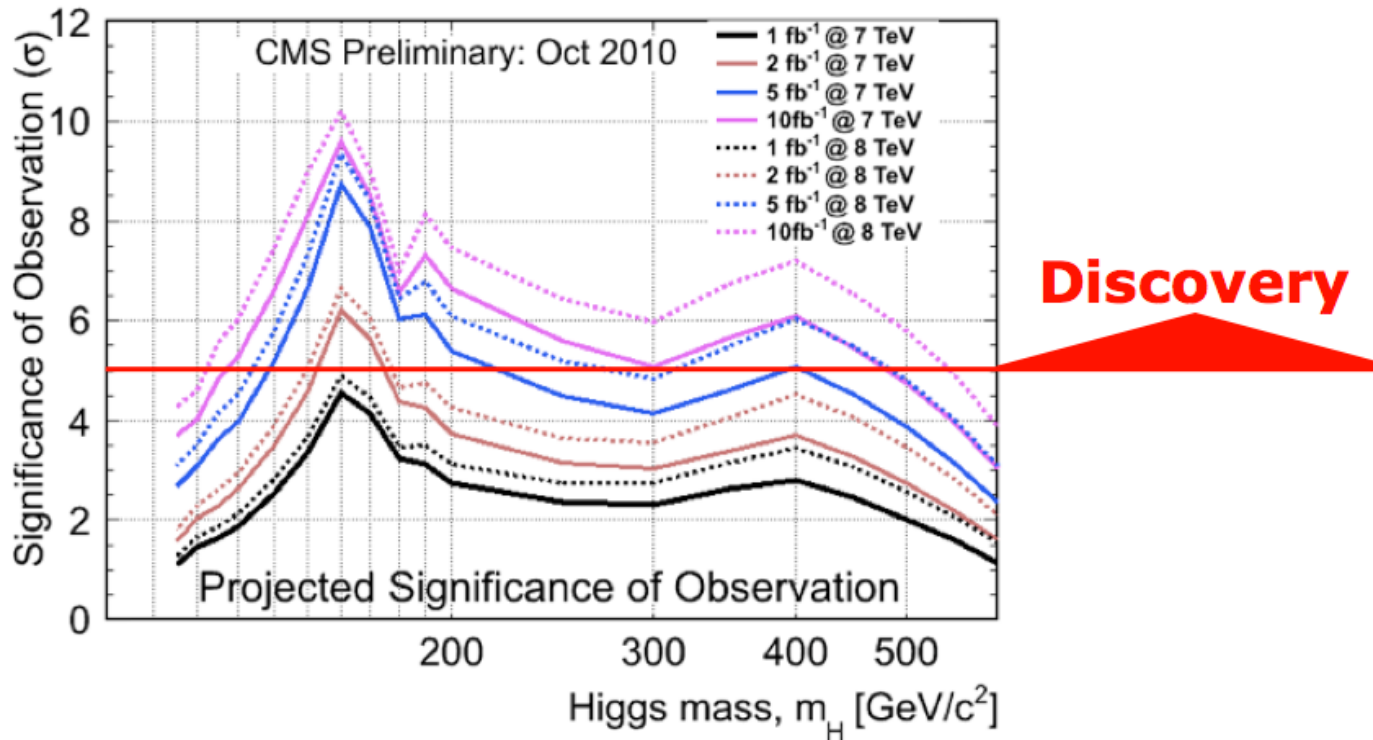
At least 3 times more than what we have seen in 2010!

✓ **Integrated luminosity between 1 and 3 fb⁻¹ would appear feasible.**

Final decision on the 2011 run plan: Chamonix Meeting end of January

2011: Project Higgs!

New studies including more Higgs decay channels and for several machine scenarios



The hunt for the elusive Higgs boson will definitely start in 2011 at the LHC!!

PHYSTAT 2011 very timely to provide a discussion forum

PHYSTAT 2011: Practical information

- Meeting Secretaries
 - Anastasia Dolya (40-5-B01)
 - Michelle Connor (4-2-004)
 - participants receiving support should contact Michelle
- All meetings in R222, including the coffee breaks
 - We had reserved the main auditorium in summer 2010, but...
- This evening: 17/1: **Welcome drink in R1 18:30**
- Tomorrow: 18/1: **Workshop Dinner in R1**
 - Seated dinner: collect your ticket with Anastasia, Albert or Louis. 50 CHF. We have a maximum number of seats available
 - Main course is fish/let us know if you have special dietary requirements
- A Poster “coffee” is foreseen for Tuesday 18/1, morning session
- Pick up your badge and wear it please!
- There will be proceedings. Details to follow soon.

Have a good workshop!