



Introduction

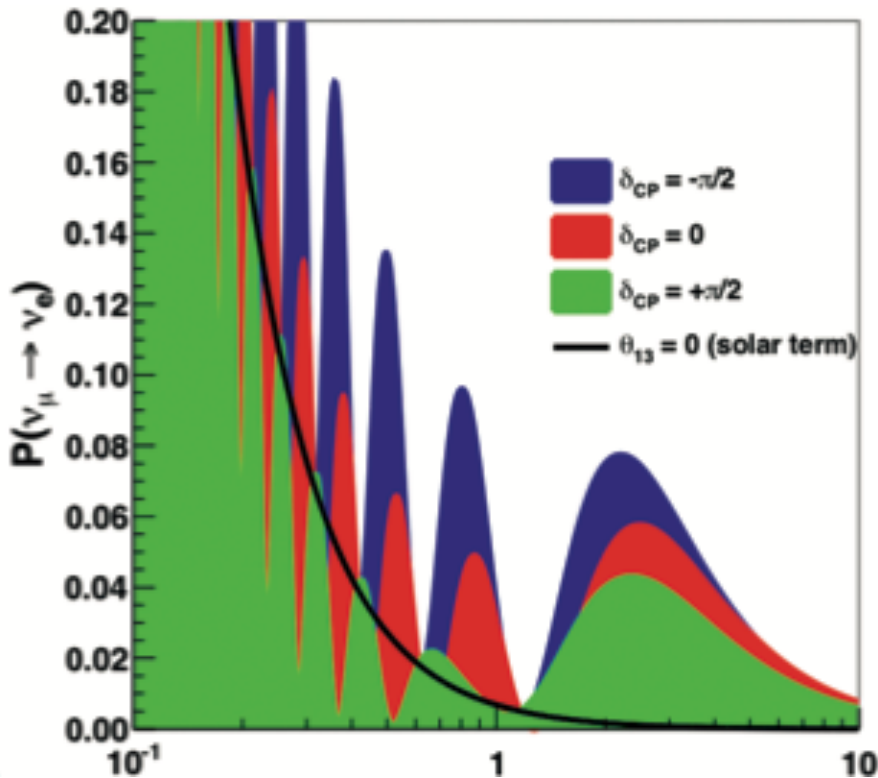
CERN, 23th Jan 2019

Olaf Behnke (DESY)

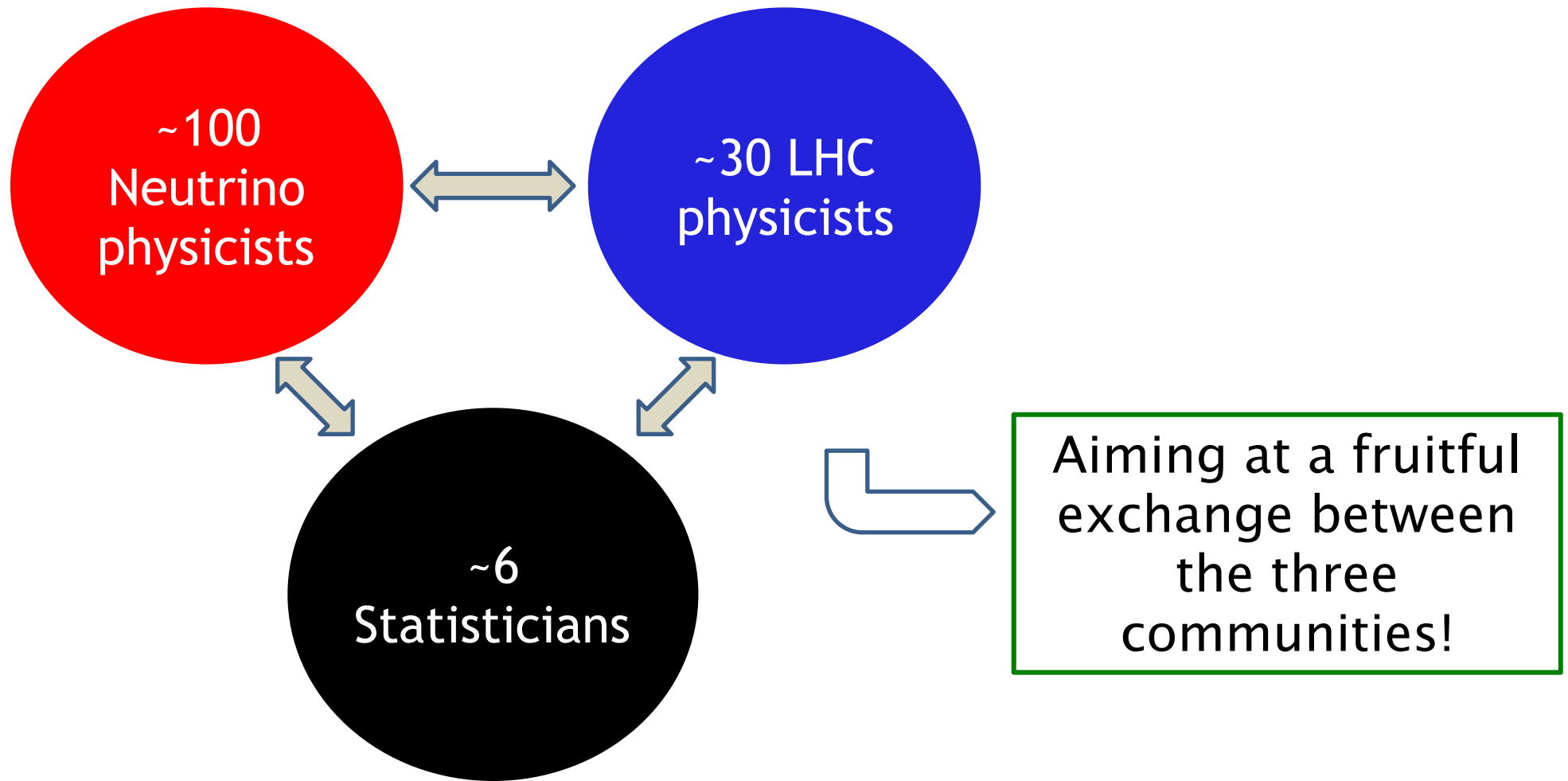
“Workshop on statistical issues in modern neutrino experiments”

Topics include:

- Model selection, parameter estimation
- Limit setting, discovery
- Systematic uncertainties
- Unfolding
- Machine Learning



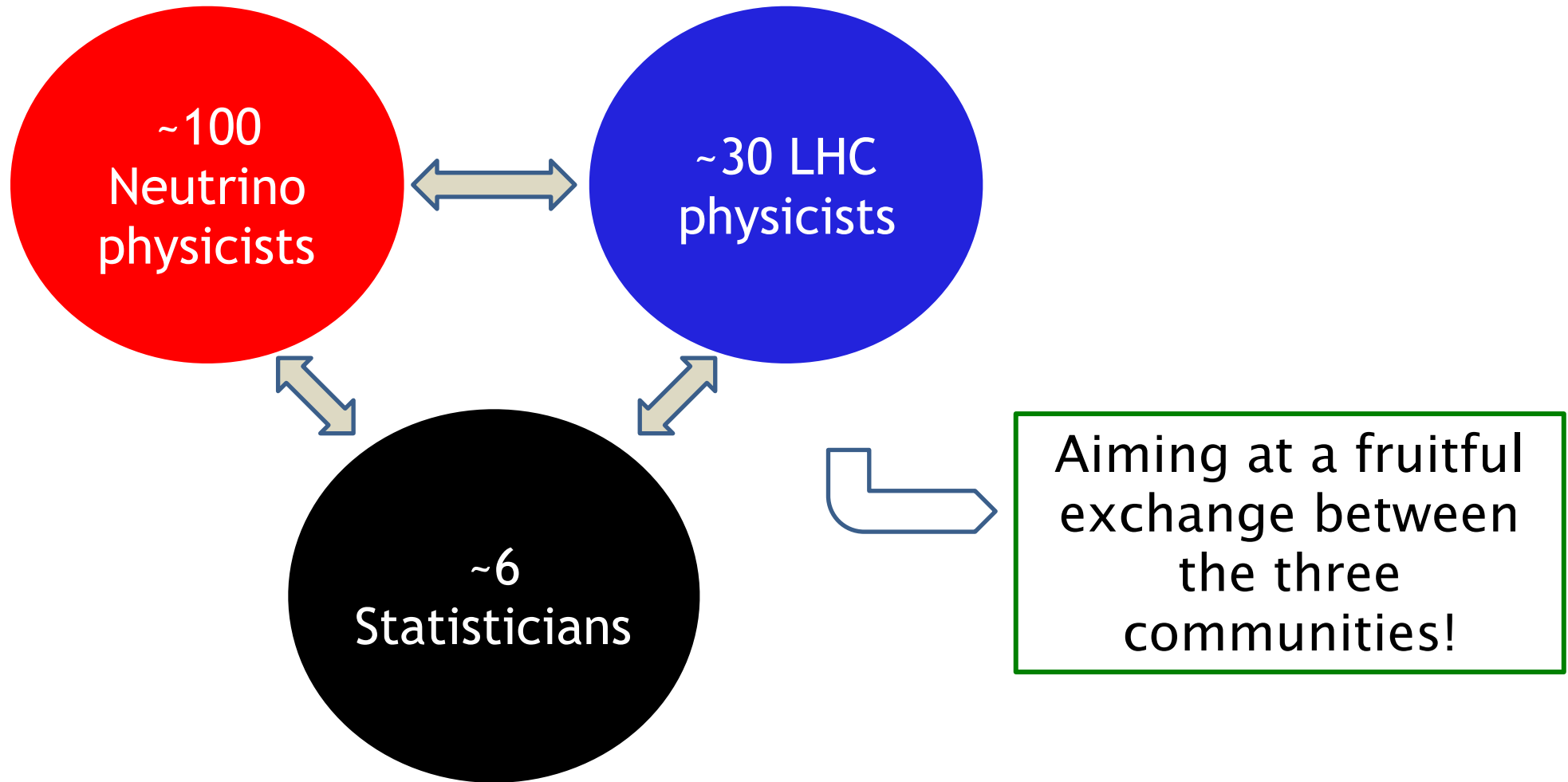
Welcome to the Phystat- ν 2019 workshop!



| Phystat- ν 2019 > =



Welcome to the Phystat- ν 2019 workshop!



Event is a follow-up of two Phystat- ν workshops in 2016:

1. Kavli institute, Kashiwa <https://indico.ipmu.jp/indico/event/82>
2. FNAL <https://indico.fnal.gov/event/11906>

WANTED

for discussion : Statisticians at workshop:



Jim
Berger



Antony
Davison



Mikael
Kuusela



Victor
Panaretos



Chad
Shafer



David van
Dyk

Don't be shy – approach them !

More info: <https://indico.cern.ch/event/735431/page/16007-statisticians-at-workshop>

Local Organisers



**Albert de
Roeck**



**Davide
Sgalaberna**



Louis Lyons



Olaf Behnke

**Conference
secretary:
Antonella Vignes-Magno**

Office 3/1-025
+41754110577



**Our contact email:
phystat-nu-
cern@cern.ch**

Programme Overview

PHYSTAT-nu 2019 at CERN - Programme Overview

	Tuesday Jan 22	Wednesday Jan 23	Thursday Jan 24	Friday Jan 25
		Registration 08:30		
9:00		Welcome (10'), v physics intro (40') v Statistical issues intro (40')	Statistical issues v experiments + Statistician's talk	Machine Learning
10:30		Coffee break	Coffee break	Coffee break
11:00		Statistical Issues v experiments	Contributed talks	Machine learning (Statistician's talk) Contributed talks
12:30	Early registration	Lunch break	Lunch break	Lunch break
14:00	13:30: Statistics Intro course (voluntary participation)	Systematic uncertainties	Unfolding	Contributed talks
15:40		Coffee break	Coffee break	15:00 Physicist's summary 15:35 Statistician's summary 16:10 Goodbye
16:10	Early registration	Statistical Issues v experiments	Contributed talks	16:20 Coffee break
17:40	17:00 Statistician's talk	Summary of the day /discussions	Summary of the day/discussions	
18:10				
		Reception & Poster Session (18:40-20:30)	Workshop Dinner (19:00-21:30)	

Three talks per topical sessions: Intro, LHC experience, v experience

Programme Overview + Venues

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18:10				
		Reception & Poster Session (18:40-20:30) Salle des Pas Perdus (B. 61-1-001	Workshop Dinner (19:00-21:30) Rest. 1 (Glass windows extension	

Technical hints:

- For all indigo registered workshop participants
 - if you have not yet been at registration desk:
 - please visit desk as soon as possible (e.g. during next coffee break) and
 - fetch your badge and wear it
 - If you have opted for dinner
 - If you have not yet paid, then pay the 50 sfr in cash or at bank at CERN
 - Get your dinner ticket (please today)
 - Enjoy drinks and food during welcome reception tonight
- For all non-registered participants:
 - Priority in rooms for registered participants
 - R222 has larger capacitance —> you might find a seat
 - Friday: Council chamber at capacitance limit —> follow via vidyo

Enjoy!



Today's agenda



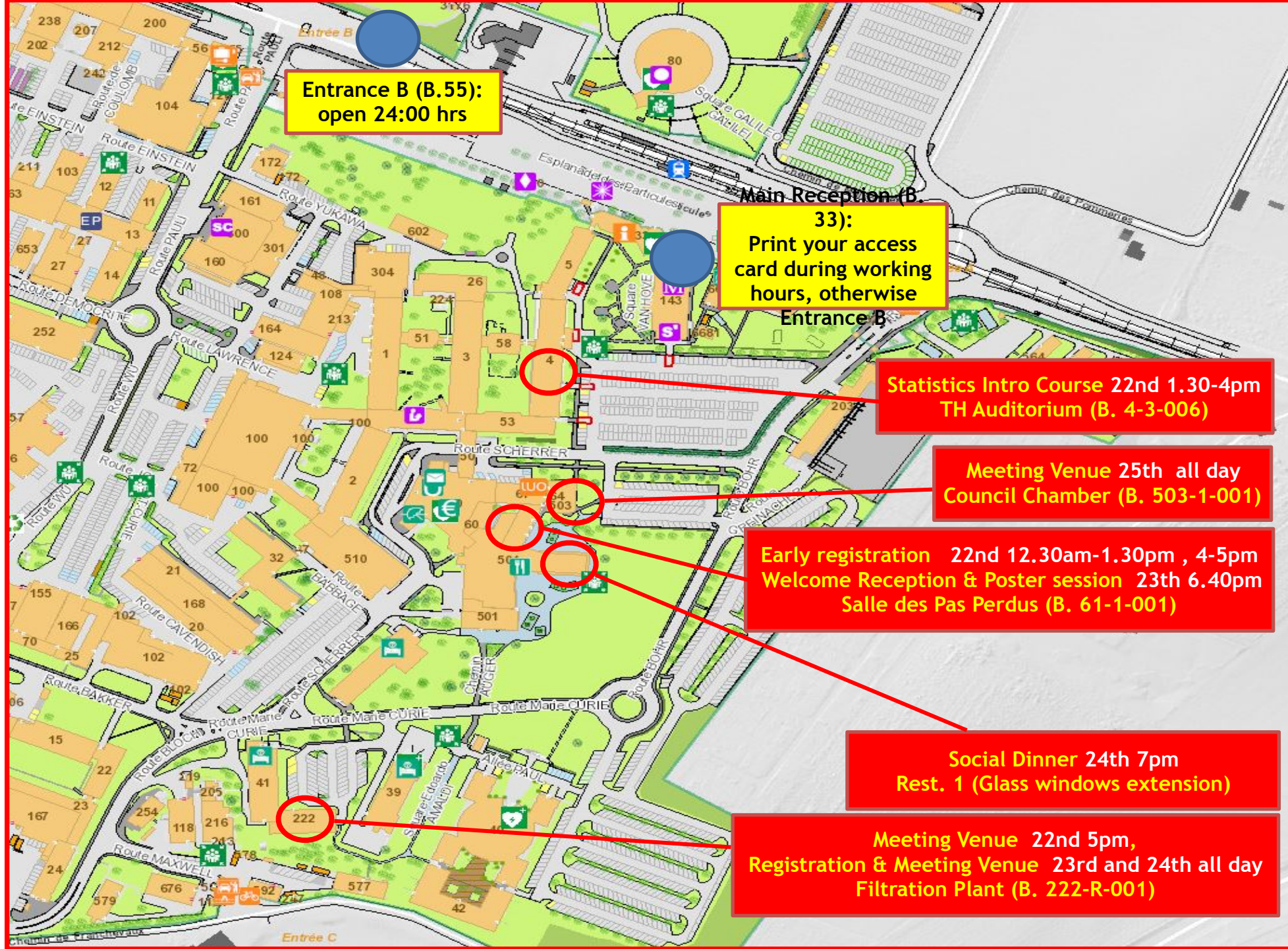
Thanks to our event sponsors!!



WEDNESDAY, 23 JANUARY

08:30	→ 09:00	Registration	222-R-001
09:00	→ 09:10	Introduction to PHYSTAT-nu	10m 222-R-001
09:10	→ 10:30	Opening Session	222-R-001 Join
09:10		Introduction to neutrino physics Speaker: Alain Blondel (Universite de Geneve (CH))	40m
09:50		Overview of statistics for neutrino physics Speaker: Yoshi Uchida (Imperial College London)	40m
10:30	→ 11:00	Coffee	30m 222-R-001
11:00	→ 12:30	Statistical issues in neutrino experiments	222-R-001
11:00		Long-baseline experiments Speaker: Alexander Himmel (Fermilab)	30m
11:30		Atmospheric neutrinos Speaker: Christophe Bronner (University of Tokyo)	30m
12:00		Reactor experiments Speaker: Chao Zhang (Brookhaven National Laboratory (US))	30m
12:30	→ 14:00	Lunch	1h 30m
14:00	→ 15:40	Session on systematic uncertainties	222-R-001
14:00		Model building, analysing and treatment of systematic uncertainties in modern HEP experiments Speaker: Wouter Verkerke (Nikhef National Institute for subatomic physics (NL))	30m
14:30		Practical experiences with ATLAS/CMS Higgs combine procedures Speaker: Nicholas Wardle (Imperial College (GB))	30m
15:00		The neutrino experiment experience Speaker: Costas Andreopoulos (University of Liverpool & STFC Rutherford Appleton Laboratory)	30m
15:30		Discussion	10m
15:40	→ 16:10	Coffee	30m 222-R-001
16:10	→ 17:35	Statistical issues in neutrino experiments	222-R-001
16:10		Fits to large data sets Speaker: Dr Stefano Gariazzo (IFIC-CSIC/University of Valencia)	30m
16:40		Cosmological neutrinos Speaker: Tim Ruhe (TU Dortmund)	30m
17:10		Direct neutrino mass measurement Speaker: Thierry Lasserre (CEA)	25m
17:40	→ 18:10	Summary of the day / discussions	30m 222-R-001
18:40	→ 20:30	Welcome Reception and poster session	61-1-201 - Pas perdu - Not a ...

[abstracts.pdf](#)



**Entrance B (B.55):
open 24:00 hrs**

**Main Reception (B. 33):
Print your access
card during working
hours, otherwise
Entrance B**

**Statistics Intro Course 22nd 1.30-4pm
TH Auditorium (B. 4-3-006)**

**Meeting Venue 25th all day
Council Chamber (B. 503-1-001)**

**Early registration 22nd 12.30am-1.30pm , 4-5pm
Welcome Reception & Poster session 23th 6.40pm
Salle des Pas Perdus (B. 61-1-001)**

**Social Dinner 24th 7pm
Rest. 1 (Glass windows extension)**

**Meeting Venue 22nd 5pm,
Registration & Meeting Venue 23rd and 24th all day
Filtration Plant (B. 222-R-001)**