Anna Colaleo, Guenter Eckerlin, Doris Eckstein, Kerstin Hoepfner, Sudir Mahlik, Andreas Mussgiller, Fabrizio Palla, Ian Shipsey, Michael Tytgat

17/11/2014

CUPS - CMS Upgrade School

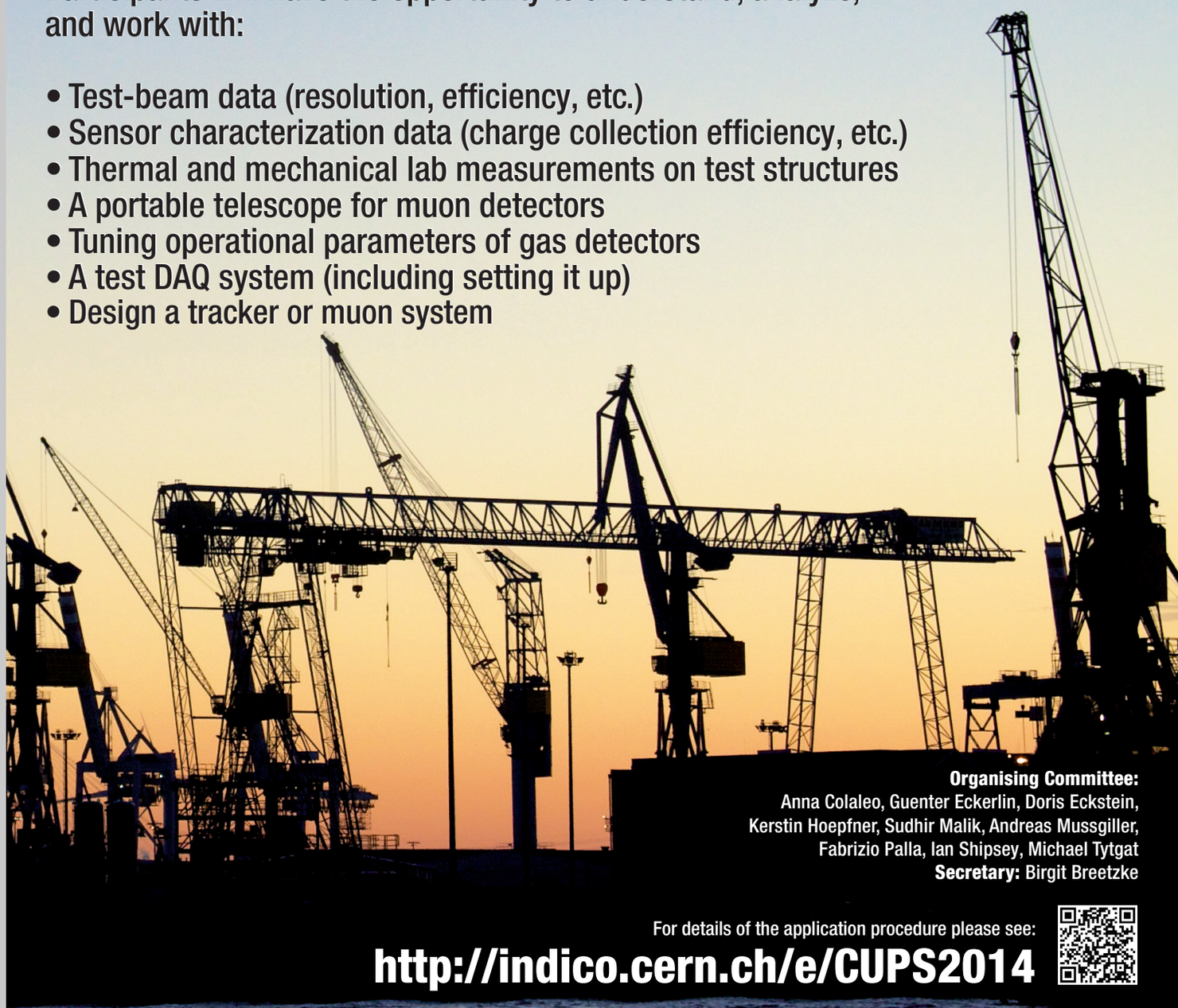
17 - 21 November 2014

DESY, Hamburg, Germany

CUPS is a hands on learning experience. It will introduce students, post docs, and new faculty and scientists to our detector and how to care for it, and to help to design the detector for Phase II.

Participants will have the opportunity to understand, analyze, and work with:

- Test-beam data (resolution, efficiency, etc.)
- Sensor characterization data (charge collection efficiency, etc.)
- Thermal and mechanical lab measurements on test structures
- A portable telescope for muon detectors
- Tuning operational parameters of gas detectors
- A test DAQ system (including setting it up)
- Design a tracker or muon system



Organising Committee:
Anna Colaleo, Guenter Eckerlin, Doris Eckstein, Kerstin Hoepfner, Sudhir Malik, Andreas Mussgiller, Fabrizio Palla, Ian Shipsey, Michael Tytgat
Secretary: Birgit Breetzke

For details of the application procedure please see:

http://indico.cern.ch/e/CUPS2014

Outline

- General Safety Instructions
- Structure of the School
  - Agenda - lectures and exercises
- Technicalities

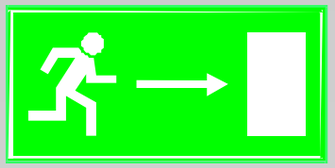
Safety Signs

Command

Prohibition

Warning

Rescue



Fire protection

* slides courtesy DESY D5

Personal Protective Equipment

protective helmet

hearing protection

safety footware

handguard

eye protection

* slides courtesy DESY D5

Warnings

(High) Voltage

Electromagnetic Field

Magnetic Field

Flammable Substances

Explosive Substances

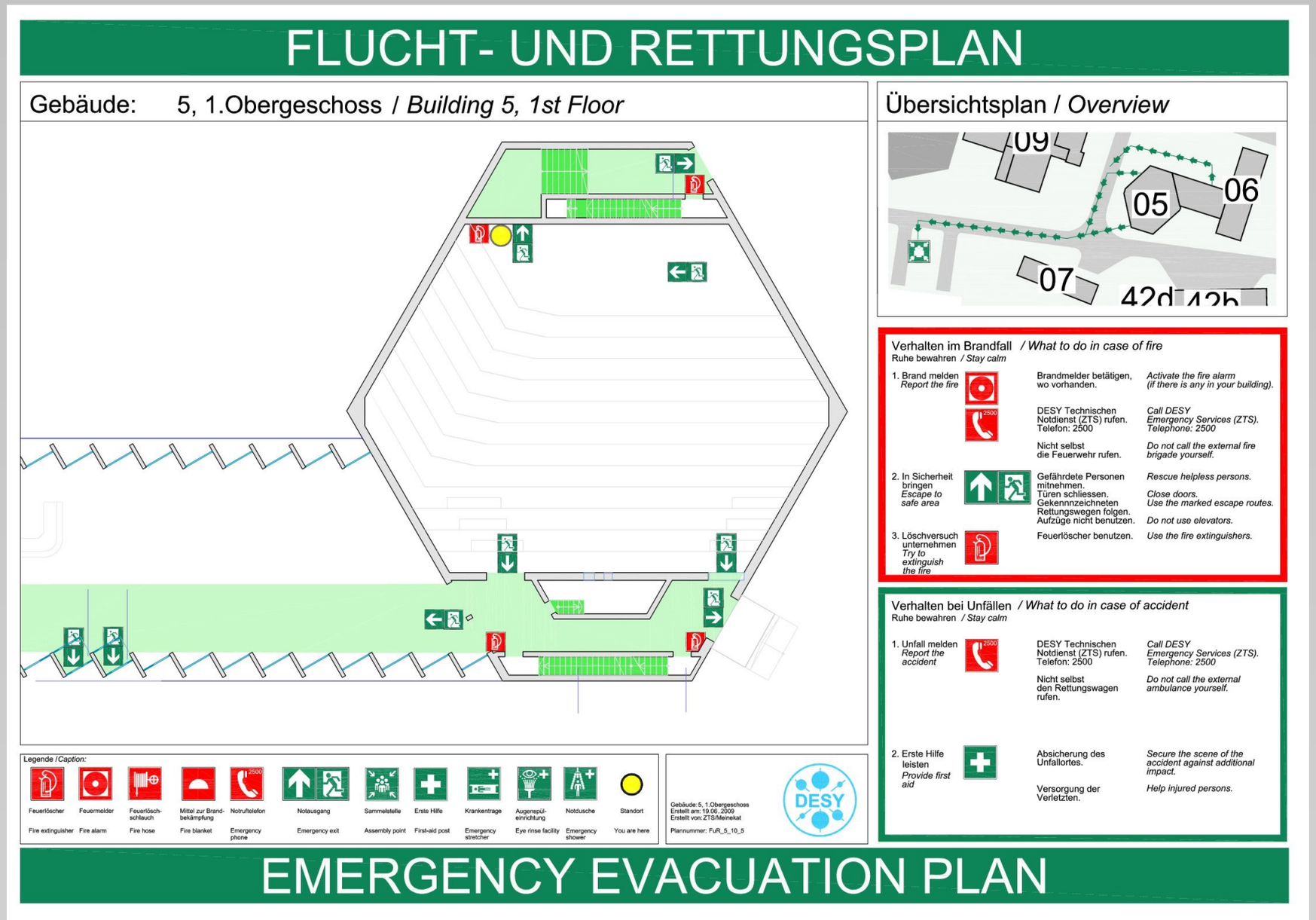
Laser

General Safety Rules at DESY

- respect safety signs and prohibitions
- contact responsible persons before entering and ask for special instruction

Do NOT Enter

Emergency Evacuation Plan



contains information about:

- Fire alarm systems
- Alarm installation
- Meeting point
- Codes of behaviour

- before you enter a lab area, have a look at the evacuation plan and make sure you know the location of
  - the emergency exits,
  - fire protection equipment

Responsabilities of all Employees

- Cooperation in effective fire prevention
- Minimization of fire risk when working with combustibles
- Taking all actions to prevent a fire from starting
- Avoiding of fire and smoke dispersal
- Attempt to extinguish the fire
- Immediate emergency call

Emergency number at DESY

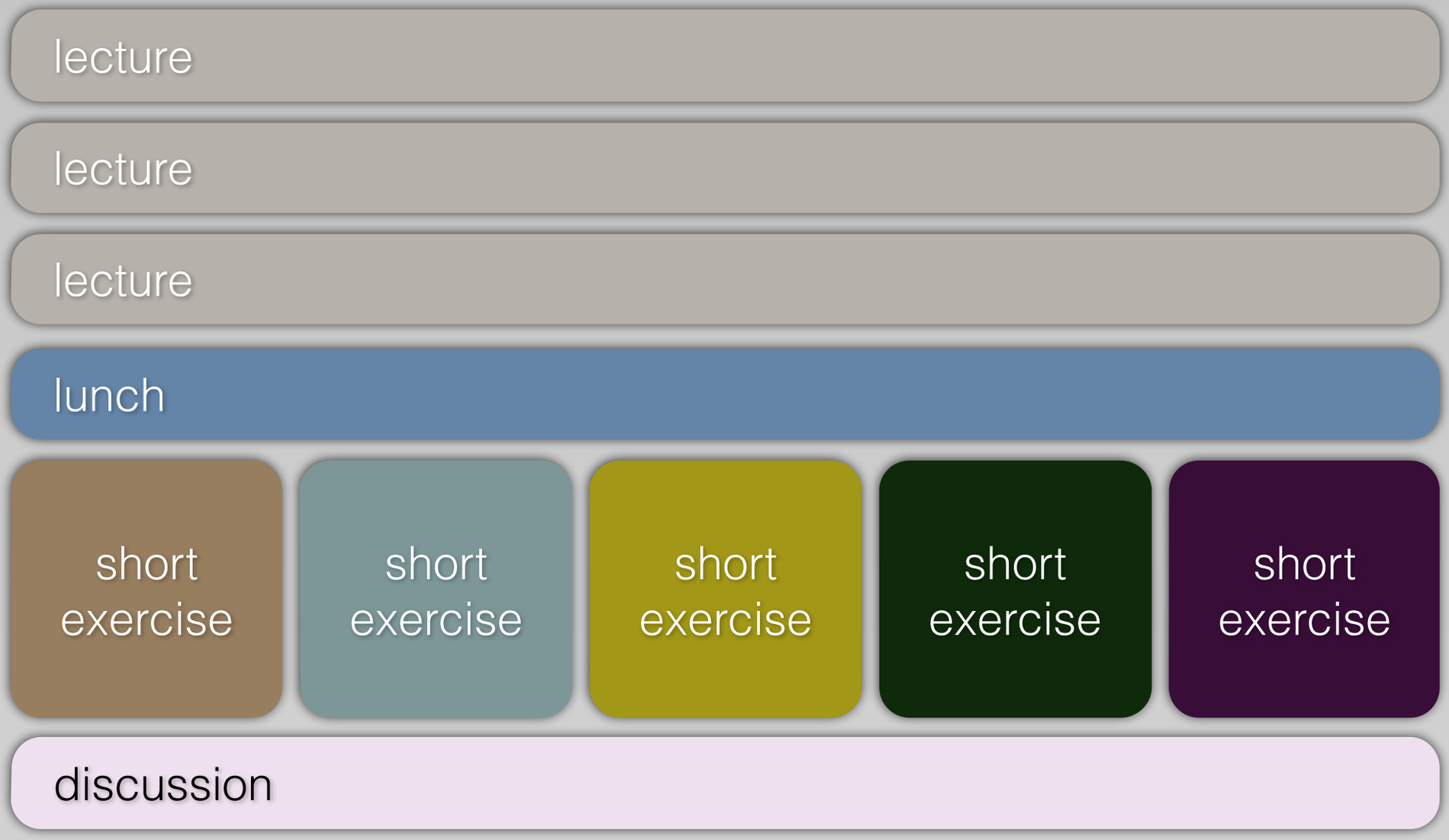
2500

DESY mobile: 66 - 2500

External mobile: +49 40 8998 - 2500

Structure of the School

- Monday through Wednesday are devoted to lectures and short exercises
  - today and tomorrow: lectures in the morning, exercises in the afternoon
  - Wednesday: short exercise in the morning followed by one more lecture



- every short exercises session will be followed by a discussion session
  - each participant / team / group is expected to present what was done, what have your learned and the results
  - just a few slides

Short Exercises

Monday	DAQ / uTCA E-Lab	tkLayout SR 4b	CBC2 Test Beam Analysis SR 4a	GEM Test Beam Analysis SR 3a	Alibava UHH
Tuesday	DAQ / uTCA E-Lab	tkLayout SR 4b	Gaseous Detectors TB Area	GEM Test Beam Analysis SR 3a	
Wednesday	DAQ / uTCA E-Lab	Delphes SR 4b	CBC2 Test Beam Analysis SR 4a	Muon Telescope TB Area	

Short Exercise Assignment

Name	Monday	Tuesday	Wednesday
Ankita Mehta	GEM TB	Gas Detectors	Muon Telescope
Ben Kilminster	DAQ / uTCA	tkLayout	Delphes
Davide Cieri	DAQ / uTCA	tkLayout	CBC2 TB
Dong Hyun Kim	GEM TB	Gas Detectors	Muon Telescope
Emrah Tiras	CBC2 TB	GEM TB	DAQ / uTCA
Ennio Monteil	Alibava	tkLayout	DAQ / uTCA
Fabio Ravera	tkLayout	DAQ / uTCA	CBC2 TB
Francois Lagarde	GEM TB	Gas Detectors	Muon Telescope
Gouranga Kole	tkLayout	DAQ / uTCA	CBC2 TB
Hadi Behnamian	GEM TB	tkLayout	Delphes
Hasan Ogul	CBC2 TB	GEM TB	DAQ / uTCA
Hyunyong Kim	GEM TB	Gas Detectors	Muon Telescope
Jason Lee	Alibava	GEM TB	DAQ / uTCA
Kuntal Mondal	DAQ / uTCA	tkLayout	CBC2 TB
Marius Preuten	tkLayout	DAQ / uTCA	CBC2 TB
Martin Delcourt	Alibava	tkLayout	DAQ / uTCA
Martin Lipinski	CBC2 TB	GEM TB	DAQ / uTCA
Martino Dall'Osso	tkLayout	DAQ / uTCA	Delphes
Mohsen Naseri	CBC2 TB	tkLayout	Delphes
Olena Karacheban	Alibava	DAQ / uTCA	Delphes
Ramandeep Kumar	DAQ / uTCA	GEM TB	Delphes
Ramkrishna Sharma	DAQ / uTCA	GEM TB	CBC2 TB
Suvankar Roy Chowdhury	tkLayout	DAQ / uTCA	CBC2 TB
Terhi Jarvinen	GEM TB	tkLayout	Delphes
Valeria Botta	CBC2 TB	tkLayout	Delphes

DAQ / uTCA

tkLayout

Delphes

CBC2 Test Beam Analysis

GEM Test Beam Analysis

Alibava

Gaseous Detectors

Muon Telescope

Structure of the School

- two long exercises on Thursday and Friday
  - final states with high-pt muons
  - final states with low-pt muons
- optimize detectors for specific reaction
  - details will be given on Wednesday afternoon in an introduction session
- two groups for each exercise - teams will be assign based on
  - the ranking of the short exercises and
  - feedback from facilitators of the short exercises

Thursday	Team 1 high-pt SR 3	Team 2 high-pt SR 3a	Team 3 low-pt **SR 4b**	Team 4 low-pt SR 5
Friday	Team 1 high-pt SR 3	Team 2 high-pt SR 3a	Team 3 low-pt **SR 1**	Team 4 low-pt SR 5

- every time is expected to present their results in competition session on Friday late morning
  - talks should be 25 + 5 minutes
- jury will give it report at 14:00

Computing Accounts

- some of the short exercise and both long exercises will be performed on the national analysis facility (NAF)
  - CBC2 and GEM test beam analysis, tkLayout, Delphes
- everyone should have received login details
  - this is YOUR account - do NOT distribute the password
- six workgroup servers are available
  - **naf-school01.desy.de** through **naf-school06.desy.de**
  - please do not just use naf-school01.desy.de
  - the facilitators of the exercises will let you know which server to use

- recipe to get you started

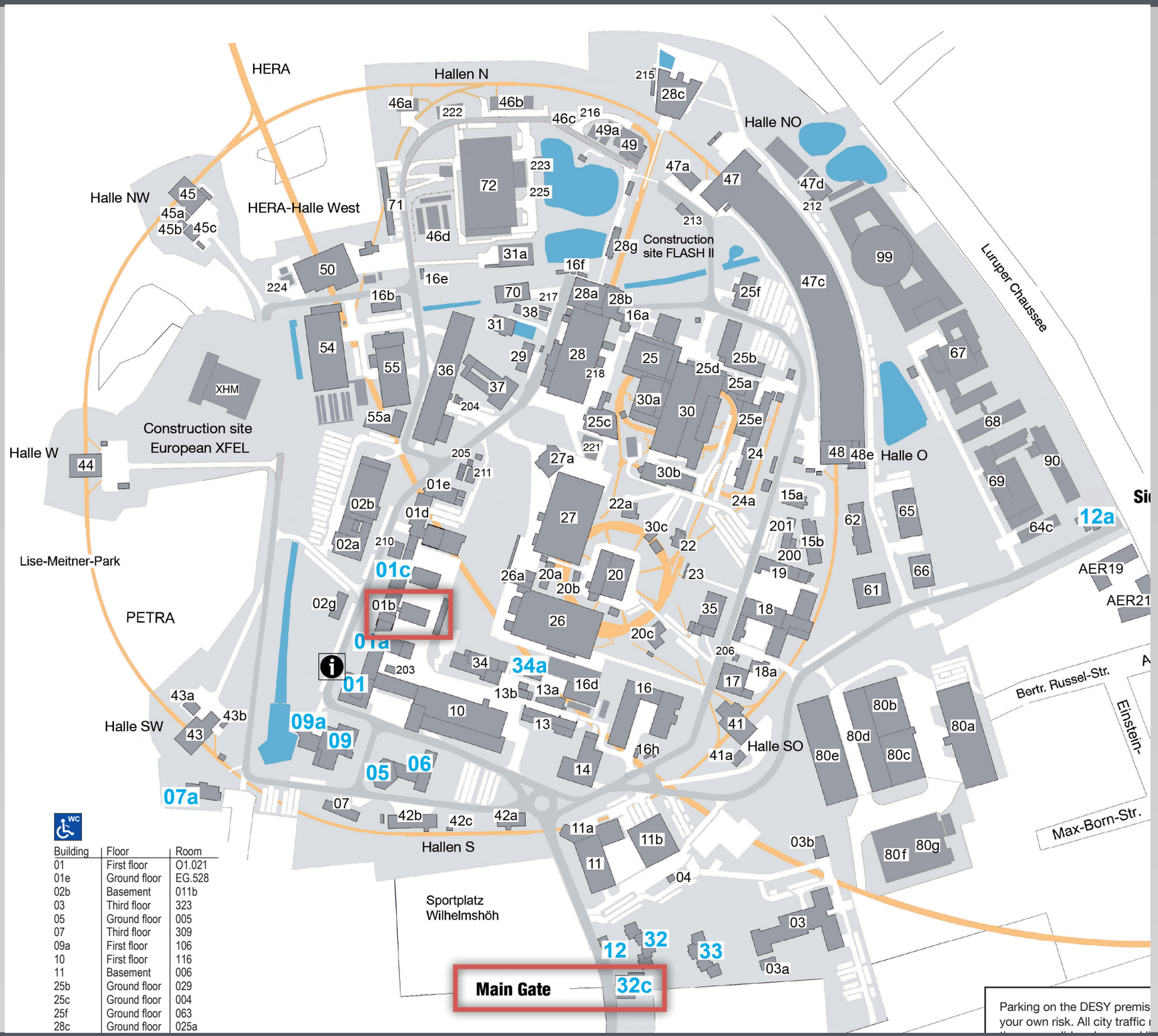
  module use -a /afs/desy.de/group/cms/modulefiles/
  module load cmssw
  module load root/5.34

- common storage area

  /nfs/dust/cms/group/cups2014/

- detailed instructions will be given during the exercises

DESY Campus Map

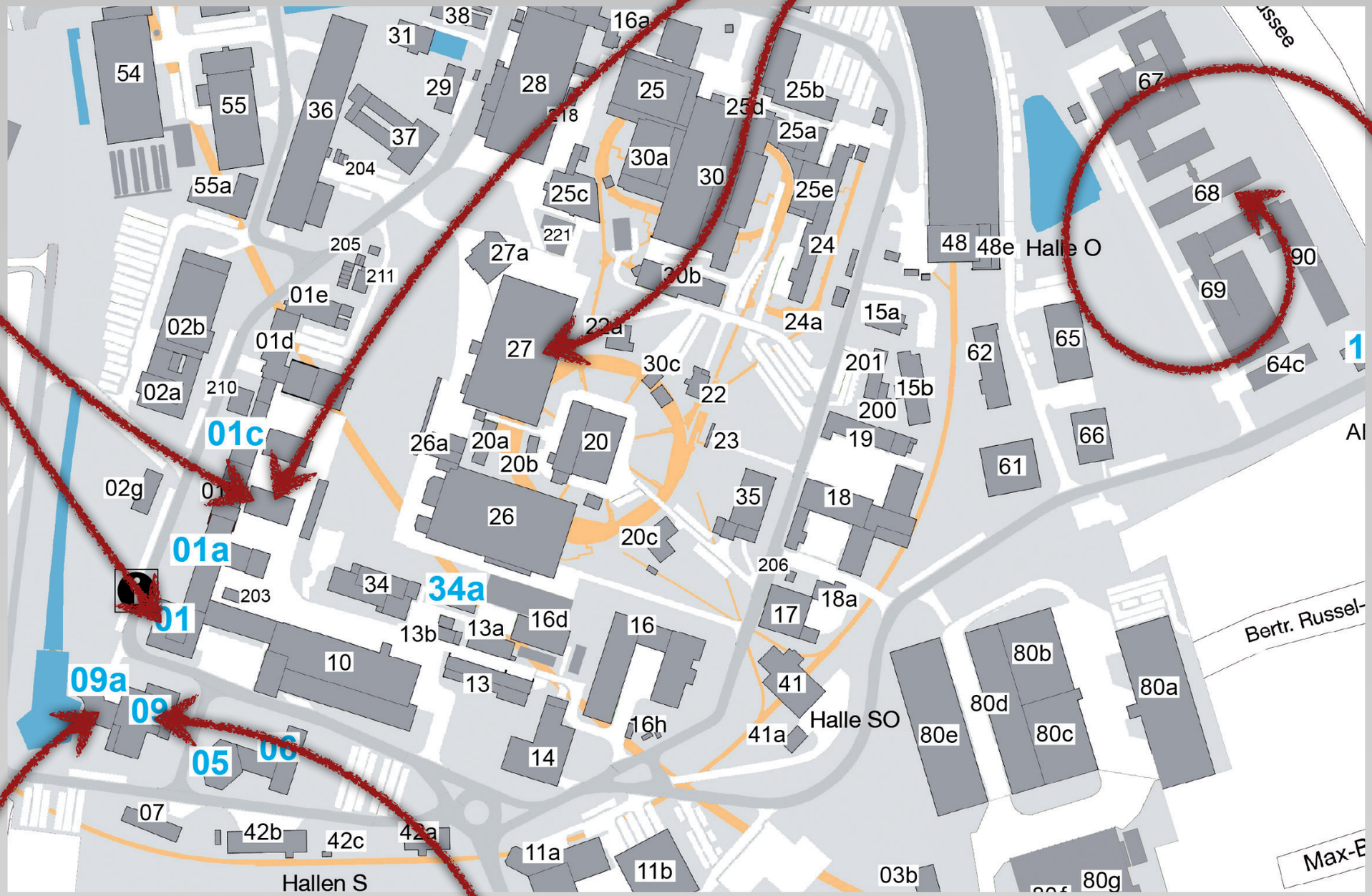


DESY Campus Map

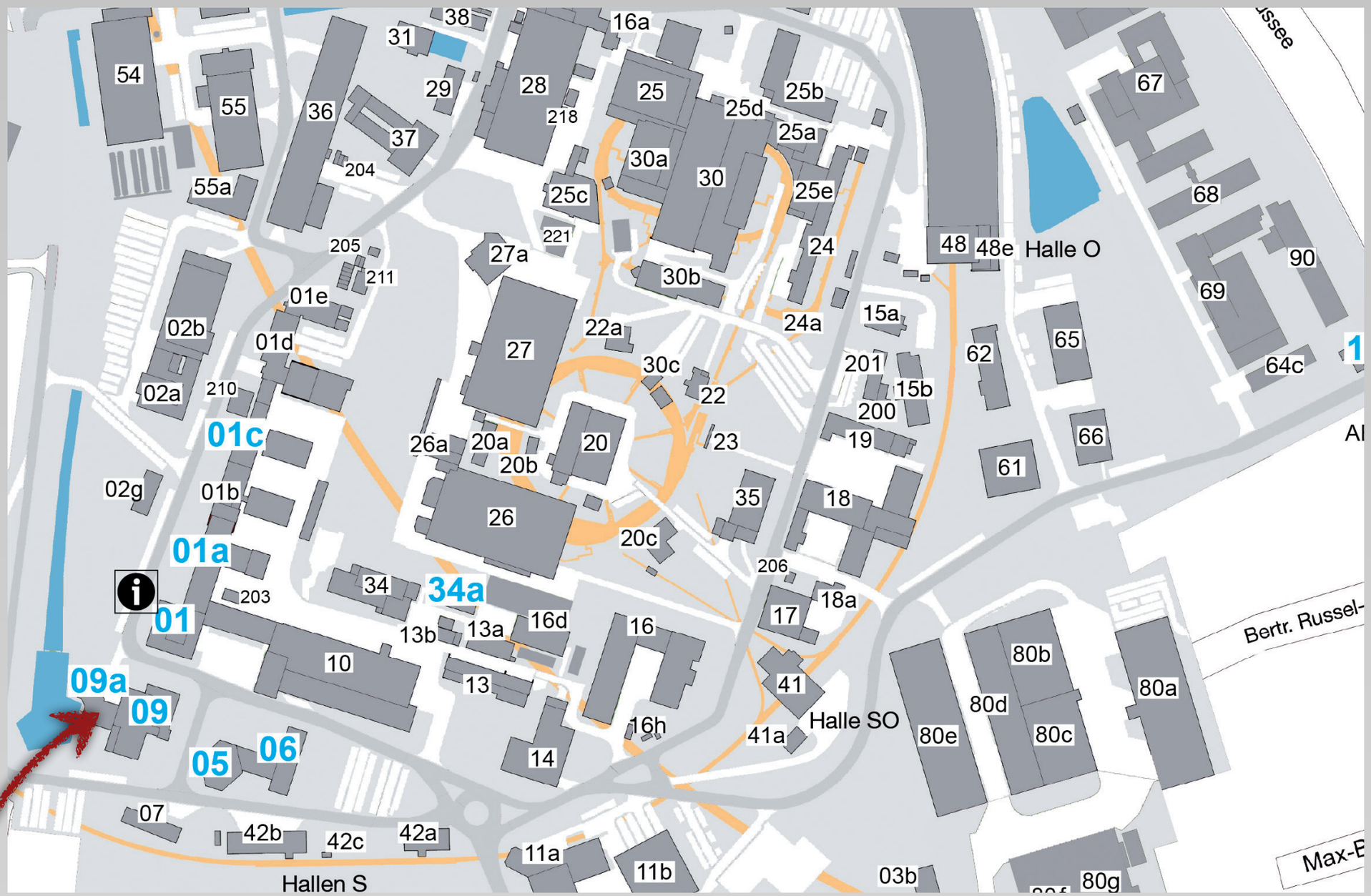
lectures, CBC2 & GEM Test Beam Analysis,
tkLayout, Delphes, long exercises

DAQ & uTCA

Gas Detectors & Muon Telescope



Reception - Tonight @ 19:00



bistro

Dinner - Wednesday @ 19:30

Osdorfer Landstraße 239
22549 Hamburg

Start:	DESY Notkestraße 85 (Hamburg) www.desy.de			
	Fußweg zur Haltestelle: ca.	→ 6 Minuten	→ 6 Minuten	→ 6 Minuten
	Haltestelle	**Fahrt 1** → **Verlauf**	**Fahrt 2** → **Verlauf**	**Fahrt 3** → **Verlauf**
ab	**Zum Hünengrab (DESY)**	**18:58**	**19:08**	**19:18**
	Linie *Richtung*	1 *Schenefelder Holt*	1 *Rissen*	1 *Schenefelder Holt*
an	**Langelohstraße (Nord)**	**19:05**	**19:15**	**19:25**
	Fußweg zum Ziel: ca.	→ 5 Minuten	→ 5 Minuten	→ 5 Minuten
Ziel:	Osdorfer Landstraße 239 (Hamburg)			
	Fahrzeit (Haltestelle - Haltestelle)	00:07	00:07	00:07
	Reisezeit (Start - Ziel)	00:18	00:18	00:18
	davon Fußwege incl. Umsteigen	00:11	00:11	00:11
	Einzelkarte für diese Fahrt (EUR)	2,00 kaufen	2,00 kaufen	2,00 kaufen

- round trip is €4,00 per person
- group ticket for 5 persons is €10,80
  - unlimited trips for one day

Today

Introduction to the School
Seminar Room 4b, DESY 08:30 - 09:00

09:00
Introduction to the Upgrades *MELZER-PELLMANN, Isabell-A.*
Seminar Room 4b, DESY 09:00 - 09:30

Detector Technologies – Silicon Detectors *HARTMANN, Frank*

10:00

Seminar Room 4b, DESY Hamburg 09:30 - 11:00

11:00
Coffee
DESY 11:00 - 11:15

Electronics for the Tracker Upgrade *VASEY, Francois*

12:00

Seminar Room 4b, DESY Hamburg 11:15 - 12:45

13:00
Lunch
DESY 12:45 - 14:00

14:00
CBC2 TB Analysis Hands-On: Session 1
Seminar Room 4a, DESY Hamburg

GEM TB Analysis Hands-On: Session 1
Seminar Room 3a, DESY Hamburg

tkLayout Hands-On: Session 1
Seminar Room 4b, DESY Hamburg

Alibava Hands-On
UHH, DESY Hamburg

DAQ / uTCA Hands-On: Session 1
E-Lab, DESY Hamburg

15:00

16:00

17:00
Discussion
Seminar Room 4b, DESY Hamburg 17:00 - 18:00

18:00

19:00
Reception

20:00

DESY 19:00 - 21:00

21:00