EDIT-2020

Excellence in Detector and Instrumentation Technologies

Organisation of the School

DESY,, February 17, 2020

Felix Sefkow

The School

Topics

Overview

Lectures

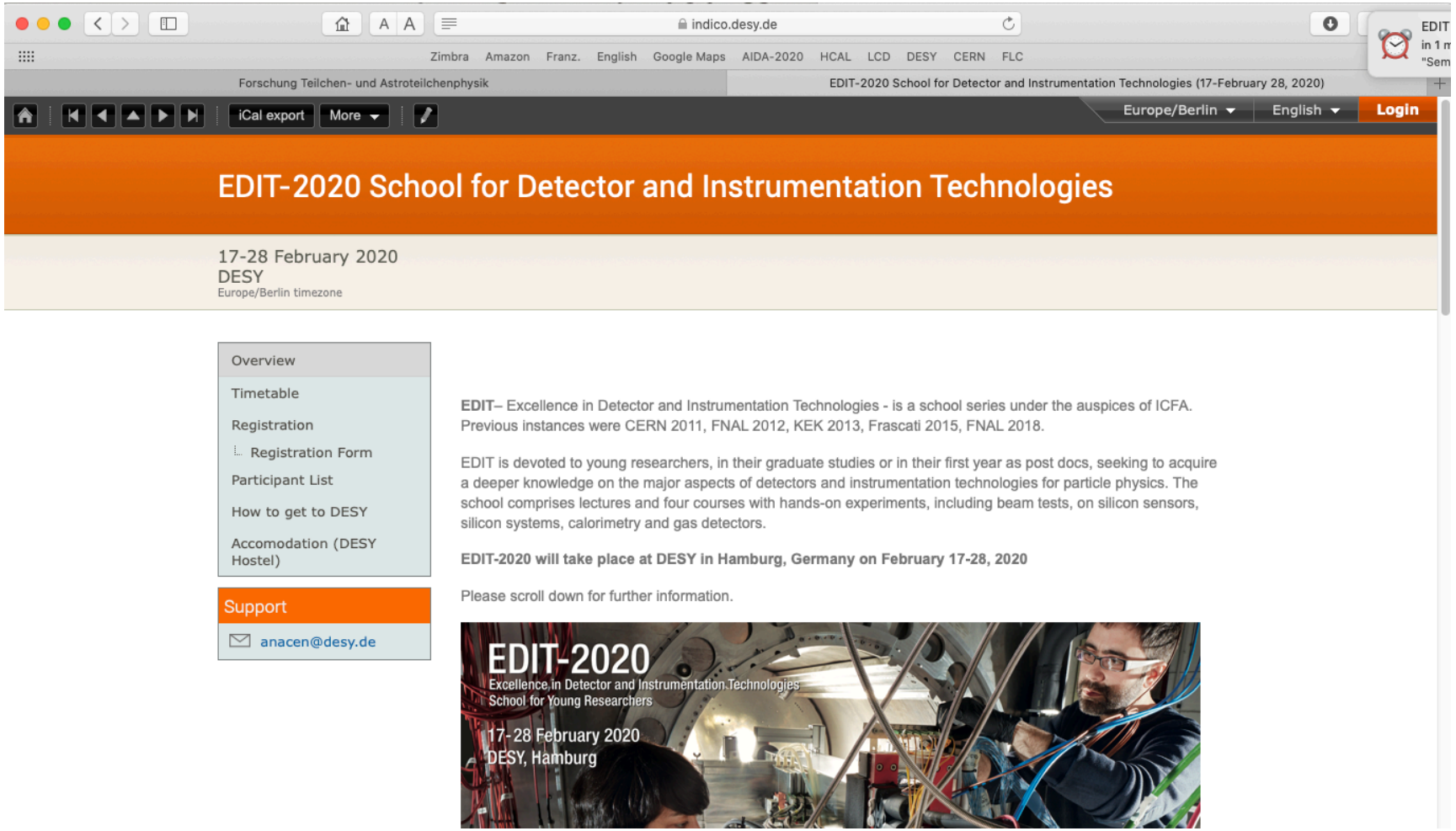
Courses & Teams

Locations

Social events

Contacts

edit2020.desy.de



The EDIT Schools

Concept and Previous Editions

EDIT Schools are held under auspices of ICFA

organised by the ICFA Instrumentation Panel

Previous editions:

CERN 2011

Fermilab 2012

KEK 2013

INFN Frascati 2015

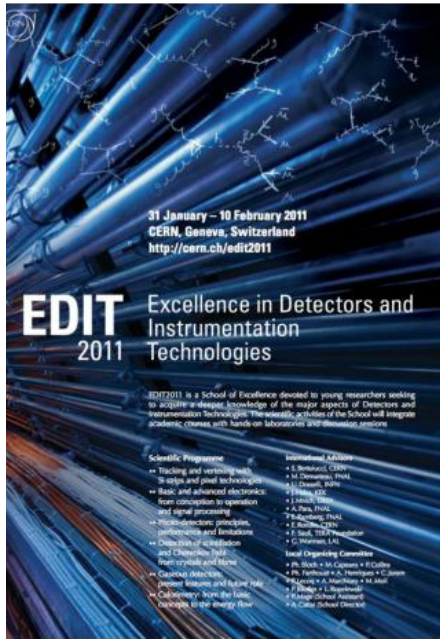
Fermilab 2018

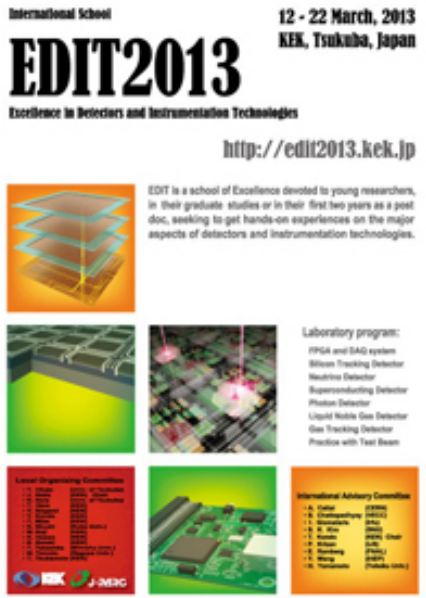
Format: Lectures and practical courses

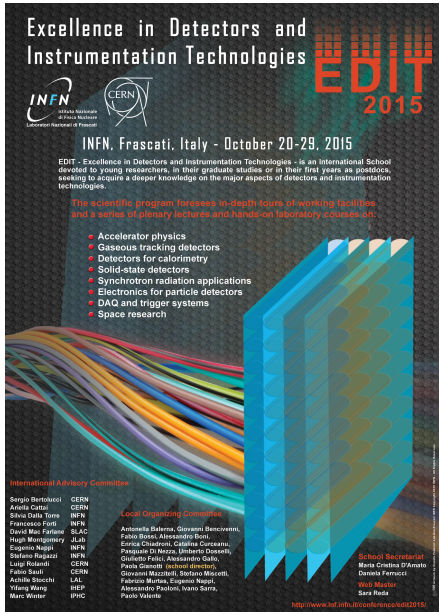
using real detector prototypes and test stands

including test beam experiments

Duration: 2 weeks





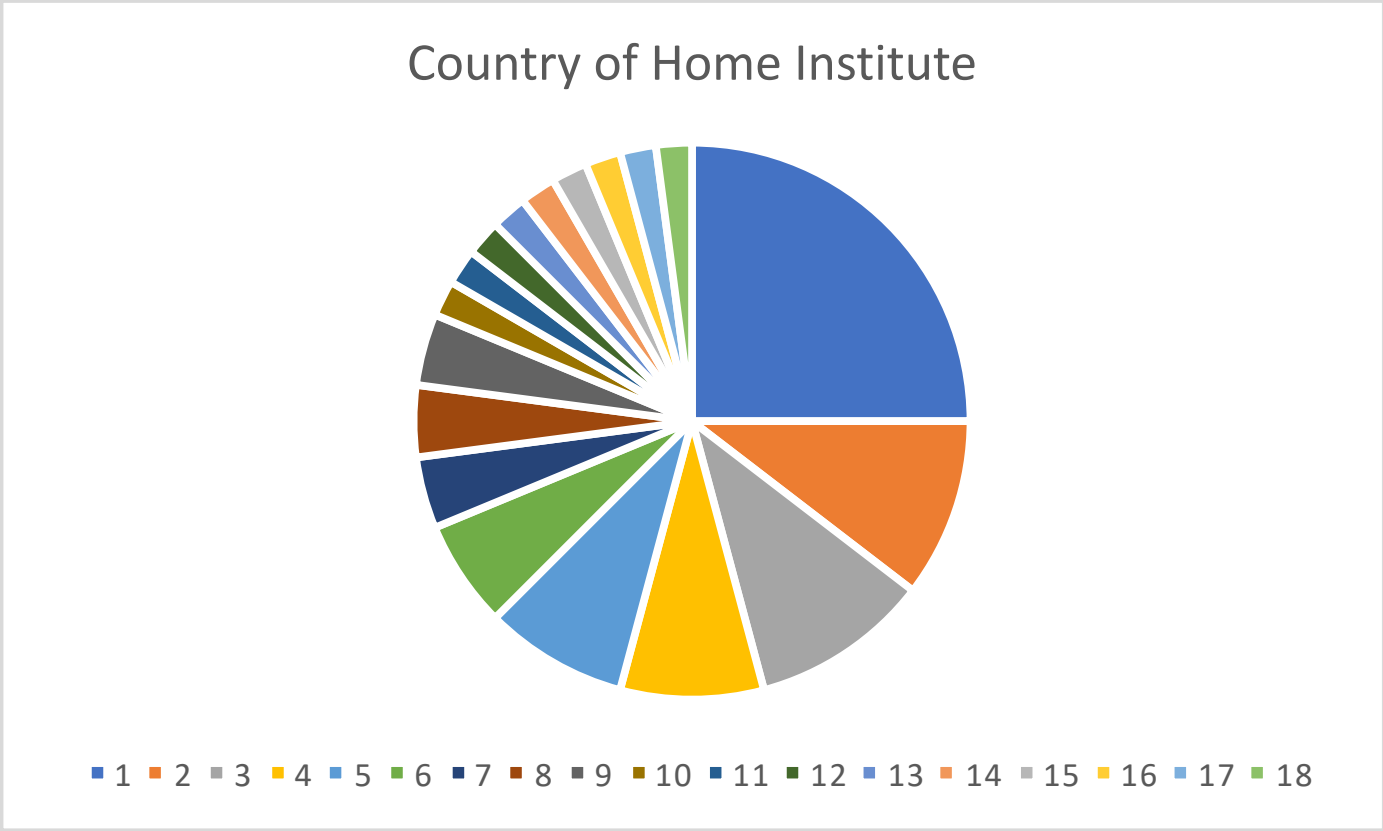


You

48 students

Small number of participants (2020: 48), competitive selection

Thank you for being here!



1	Germany
2	Switzerland
3	UK
4	France
5	Italy
6	USA
7	Austria
8	Czech. Rep.
9	Japan
10	Argentina
11	Belgium
12	Canada
13	Croatia
14	Finland
15	Mexico
16	Portugal
17	Russ. Feder.
18	Spain

Europe* 28
Germany 12
Americas 5
Asia 3

* w/ UK, RUS, w/o DE

The Lecturers

17 Lectures

Tracking:

Basic Principles Nick Styles (DESY)

Silicon Detectors I-III: Doris Eckstein (DESY), Norbert Wermes (**Bonn**), Petra Riedler (**CERN**)

Gaseous Detectors Eraldo Oliveri (**CERN**)

Calorimeters:

I-III: Erika Garutti (**Hamburg**), Martin Aleksa (**CERN**), Katja Krüger (DESY)

Cryogenic Detectors, Particle ID, Photodetectors:

Cryogenic Noble Gas Detectors Stefan Söldner-Rembold (**Manchester**)

Particle Identification: Peter Krizan (**Ljubljana**)

Photodetectors: Wataru Ootani (**Tokyo**)

Electronics, Triggerand DAQ

Electronics and Signal Processing Christophe de La Taille (**Palaiseau**)

Trigger and DAQ Hans-Christian Schultz Coulon (**Heidelberg**)

Overviews

Detector Development at DESY Ties Behnke (DESY)

Detectors: Great Concepts and Glorious Failures Ingrid-Maria Gregor (DESY / Bonn)

Lectures will be **60 min** plus **15' Questions** & Answers for the **Students (!)**

Thank you for coming to DESY

The First Day

Getting Started

Monday, February 17, 2020

10:00 - 10:45	Welcome and organisational matters *45'* Speakers: Felix Sefkow (DESY), Prof. Joachim Mnich (DESY)
10:45 - 11:45	Tracking: Basic Principles *1h0'* Speaker: Dr. Nicholas Styles (DESY)
11:45 - 12:00	Discussion *15'*
12:00 - 14:00	Lunch (Canteen)
14:00 - 15:00	Silicon Detectors I *1h0'* Speaker: Doris Eckstein (DESY)
15:00 - 15:15	Discussion *15'*
15:15 - 15:45	Coffee (Foyer SR4)
15:45 - 16:30	Calorimetry I *45'* Speaker: Prof. Erika Garutti (University of Hamburg)
16:30 - 16:45	Disussion *15'*
16:45 - 17:45	Safety *1h0'* Speaker: Mr. Marcel Stanitzki (DESY)
18:00 - 20:00	Welcome Reception (Canteen Extension)

The Last Day

Finishing up.

Friday, February 28, 2020

09:00 - 10:00	Cryogenic Noble Gas Detectors *1h0'* Speaker: Stefan Söldner-Rembold (Manchester)
10:00 - 10:15	Discussion *15'*
10:15 - 11:15	Electronics and Signal Processing *1h0'* Speaker: Christophe De La Taille (IN2P3/CNRS, Paris, France)
11:15 - 11:30	Discussion *15'*
11:30 - 12:00	Coffee (Foyer SR4)
12:00 - 13:00	Detector Development at DESY *1h0'* Speaker: Ties Behnke (DESY)
13:00 - 14:00	Lunch (Canteen)
14:00 - 15:00	Detectors: Great Concepts and Glorious Failures *1h0'* Speaker: Ingrid-Maria Gregor (DESY/Uni Bonn)
15:00 - 15:15	Farewell *15'*

The Courses

Hands-on Exercises

Silicon Sensors

Doris Eckstein, Ingrid Gregor

Silicon Systems

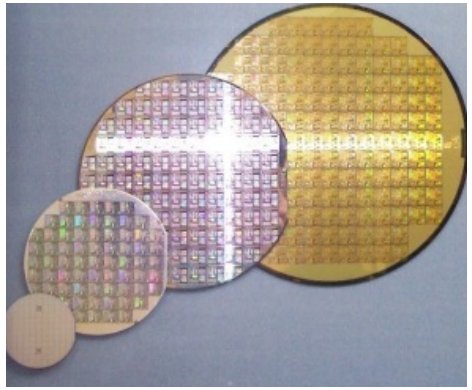
Marta Baselga, Ingrid Gregor

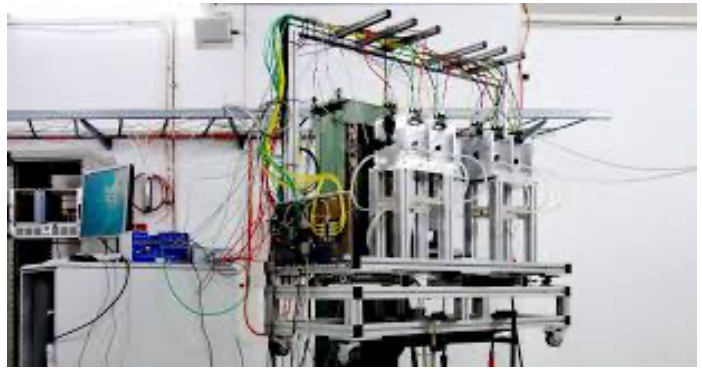
Calorimetry

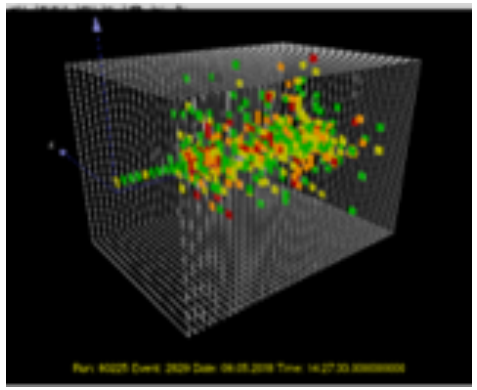
Katja Krüger, FS

Gaseous Detectors

Ralf Diener, Oliver Schäfer







Tutors:

Paul Schütze, Simon Spannagel, Surabhi Sharma, Alessia Renardi, Yi Liu, Chaowaroj Wanotayaroj, Marco Rimoldi, Ali Harb, Moritz Guthoff, Mareike Meyer, Chun Cheng, Hendrik Jansen, Mykyta Haranko, Roberval Walsh, Younes Otarid, Annika Vauth, Anastasiia Velyka, Vladimir Bocharnikov, Eldwan Brianne, Daniel Heuchel, Olin Pinto, Engin Eren, Remi Ete, Markus Gruber, Lennart Huth, Christoph Krieger, Felix Johannes Mueller

Courses take **2 days** each

All students do **all Courses**

Course Days 2-5, 6-9

The Timelines

Lectures start at 0900 s.t. (sharp)

Then Q&A and Coffee (here)

Courses start at 1100 s.t.

each day

First day of each course:

split into 4 groups à 12 students

Courses start with an introduction

~20 min presentation

Each course has 4 Tasks

After the presentation:

Each group splits into 4 Teams

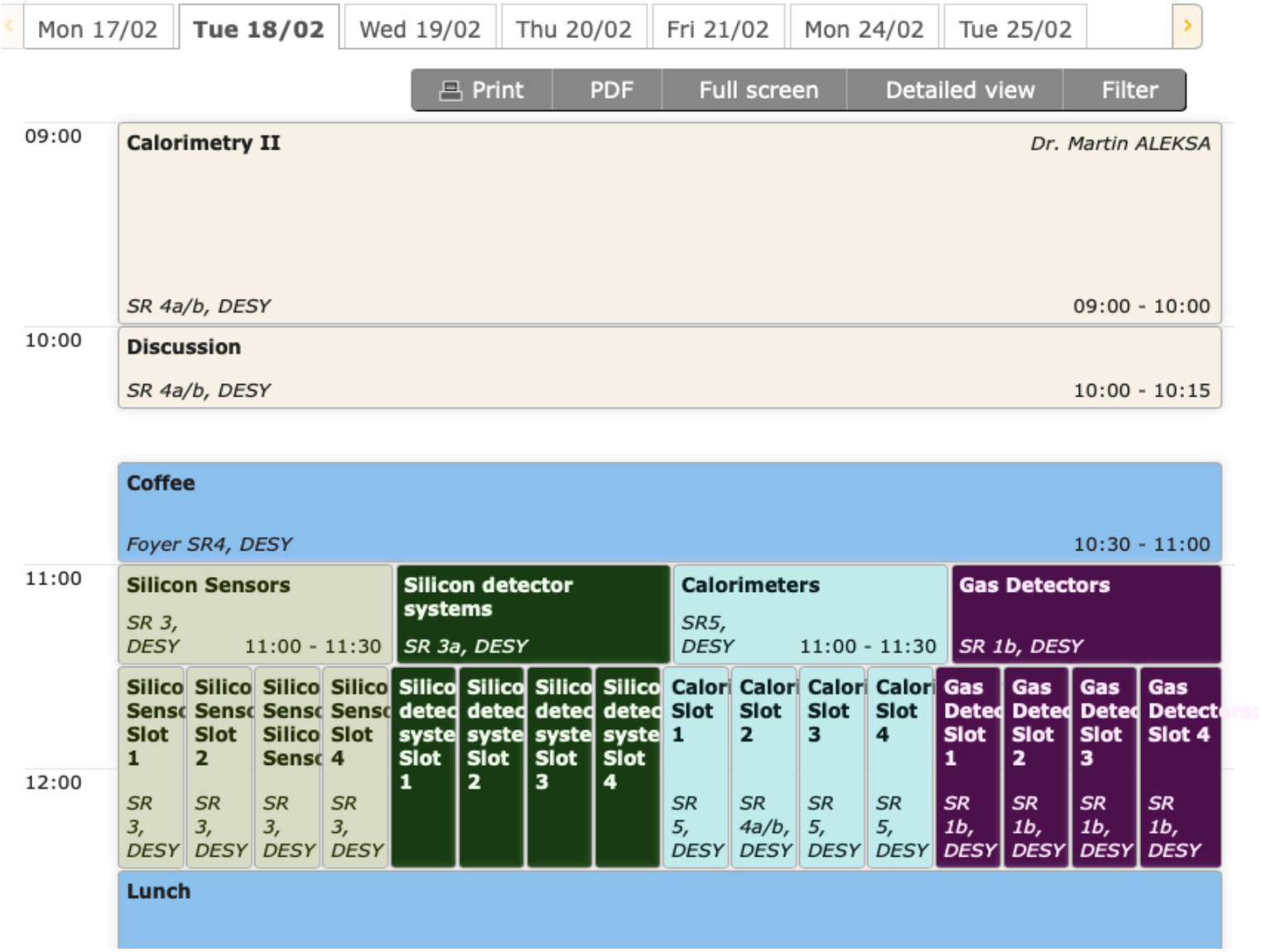
Teams rotate through the tasks

2 Tasks per day

Second day: no introduction

after coffee go to Task directly

Third day: start over with next Course



Groups and Teams

Your Classmates

HERA

ZEUS	H1	HERA-B	Hermes
Arling, Jan-Hendrik	Giakoustidis, Georgios	Hadzic, Sejla	Hajheidari, Mohammadtaghi
Toscani, Mariana	Radich, Allison	Hammerich, Jan	Mironova, Maria
Sykora, Martin	Muller, Roman	Gen, Tateno	Fiorina, Davide

PETRA

TASSO	JADE	Mark-J	CELLO
Hohm, Valerie Vanessa	Honig, Jan Cedric	Immig, David Maximilian	Klingenmeyer, Hannah
Gadkari, Divya	Latonova, Vera	Agapopoulou, Christina	Roguljic, Matej
Mulargia, Roberto	Loi, Angelo	Pintaudi, Giorgio	Ayala Torres, Marco A.

DORIS

ARGUS	DASP	PLUTO	Crystal Ball
Lucchetta, Giulio	Magdefessel, Sven	Mobius, Silke	Witola, Lukas
Porter, Alice	Ramasubramanian, Niveditha	Di Croce, Davide	Li, Zhiying
Berner, Roman	Gaspar Marques, David Jose	Almeida, Pedro	Chatterjee, Meghranjana

Beyond Collider

ALPS	Baby-IAXO	Madmax	Olympus
Dachs, Florian	Dungs, Sascha	Ulrich-Pur, Felix	Wiehe, Moritz
Taibah, Reem	Daribayeva, Aizat	Cicero, Valentina	Brondolin, Erica
Rumberger, Brant	Bharthuar, Shudhashil	Denysenko, Vadym	Wang, Shen

Teams stay together for the entire school

Team Schedules

How It Works Out

First Week

		Tu 18	Tu 18	Wed 19	Wed 19	Th 20	Th 20	Fr 21	Fr 21	Location
		M	A	M	A	M	A	M	A	
Track 1: Silicon Sensors	Task 1: IV/CV characteristics	ZEUS	H1	HERA-B	Hermes	ALPS	Baby-IAXO	Madmax	Olympus	25c
	Task 2: Simulation with weightfield2	H1	ZEUS	Hermes	HERA-B	Baby-IAXO	ALPS	Olympus	Madmax	Seminarraum 3a
	Task 3: Energy loss, ALiBaVa	HERA-B	Hermes	ZEUS	H1	Madmax	Olympus	ALPS	Baby-IAXO	eLab
	Task 4: Charge mobility, TCT setup	Hermes	HERA-B	H1	ZEUS	Olympus	Madmax	Baby-IAXO	ALPS	eLab
Track 2: Silicon Systems	Task 5: TDAQ performance	TASSO	JADE	Mark-J	CELLO	ZEUS	H1	HERA-B	Hermes	eLab
	Task 6: Spatial resolution simulation	JADE	TASSO	CELLO	Mark-J	H1	ZEUS	Hermes	HERA-B	Seminarraum 3a
	Task 7: Telescope alignment	Mark-J	CELLO	TASSO	JADE	HERA-B	Hermes	ZEUS	H1	TB 21
	Task 8: Multiple scattering	CELLO	Mark-J	JADE	TASSO	Hermes	HERA-B	H1	ZEUS	TB 21
Track 3: Calorimeters	Task 9: Beam Tests with MIPs	ARGUS	DASP	PLUTO	Crystal Ball	TASSO	JADE	Mark-J	CELLO	TB24/1
	Task 10: Beam Tests with e showers	DASP	ARGUS	Crystal Ball	PLUTO	JADE	TASSO	CELLO	Mark-J	TB24/1
	Task 11: SiPM gain	PLUTO	Crystal Ball	ARGUS	DASP	Mark-J	CELLO	TASSO	JADE	Seminarraum 5
	Task 12: Showers and PFLOW	Crystal Ball	PLUTO	DASP	ARGUS	CELLO	Mark-J	JADE	TASSO	Seminarraum 5
Track 4: Gas detectors	Task 13: Iron 55 spectrum	ALPS	Baby-IAXO	Madmax	Olympus	ARGUS	DASP	PLUTO	Crystal Ball	Hera west
	Task 14: GridPix	Baby-IAXO	ALPS	Olympus	Madmax	DASP	ARGUS	Crystal Ball	PLUTO	Hera west
	Task 15: Gain by measuring GEM currents	Madmax	Olympus	ALPS	Baby-IAXO	PLUTO	Crystal Ball	ARGUS	DASP	Hera west
	Task 16: Impact of readout granularity	Olympus	Madmax	Baby-IAXO	ALPS	Crystal Ball	PLUTO	DASP	ARGUS	Seminarraum 1b

Team Schedules

How It Works Out

Second Week

		Mo 24	Mo 24	Tu 25	Tu 25	Wed 26	Wed 26	Th 27	Th 27	Location
		M	A	M	A	M	A	M	A	
Track 1: Silicon Sensors	Task 1: IV/CV characteristics	ARGUS	DASP	PLUTO	Crystal Ball	TASSO	JADE	Mark-J	CELLO	25c
	Task 2: Simulation with weightfield2	DASP	ARGUS	Crystal Ball	PLUTO	JADE	TASSO	CELLO	Mark-J	Seminarraum 3a
	Task 3: Energy loss, ALiBaVa	PLUTO	Crystal Ball	ARGUS	DASP	Mark-J	CELLO	TASSO	JADE	eLab
	Task 4: Charge mobility, TCT setup	Crystal Ball	PLUTO	DASP	ARGUS	CELLO	Mark-J	JADE	TASSO	eLab
Track 2: Silicon Systems	Task 5: TDAQ performance	ALPS	Baby-IAXO	Madmax	Olympus	ARGUS	DASP	PLUTO	Crystal Ball	eLab
	Task 6: Spatial resolution simulation	Baby-IAXO	ALPS	Olympus	Madmax	DASP	ARGUS	Crystal Ball	PLUTO	Seminarraum 3a
	Task 7: Telescope alignment	Madmax	Olympus	ALPS	Baby-IAXO	PLUTO	Crystal Ball	ARGUS	DASP	TB 21
	Task 8: Multiple scattering	Olympus	Madmax	Baby-IAXO	ALPS	Crystal Ball	PLUTO	DASP	ARGUS	TB 21
Track 3: Calorimeters	Task 9: Beam Tests with MIPs	ZEUS	H1	HERA-B	Hermes	ALPS	Baby-IAXO	Madmax	Olympus	TB24/1
	Task 10: Beam Tests with e showers	H1	ZEUS	Hermes	HERA-B	Baby-IAXO	ALPS	Olympus	Madmax	TB24/1
	Task 11: SiPM gain	HERA-B	Hermes	ZEUS	H1	Madmax	Olympus	ALPS	Baby-IAXO	Seminarraum 5
	Task 12: Showers and PFLOW	Hermes	HERA-B	H1	ZEUS	Olympus	Madmax	Baby-IAXO	ALPS	Seminarraum 5
Track 4: Gas detectors	Task 13: Iron 55 spectrum	TASSO	JADE	Mark-J	CELLO	ZEUS	H1	HERA-B	Hermes	Hera west
	Task 14: GridPix	JADE	TASSO	CELLO	Mark-J	H1	ZEUS	Hermes	HERA-B	Hera west
	Task 15: Gain by measuring GEM currents	Mark-J	CELLO	TASSO	JADE	HERA-B	Hermes	ZEUS	H1	Hera west
	Task 16: Impact of readout granularity	CELLO	Mark-J	JADE	TASSO	Hermes	HERA-B	H1	ZEUS	Seminarraum 1b

Locations

The Place To Be

DetLab Hera West

DAF 25c

Test Beam

Sem 3, 3a, 5

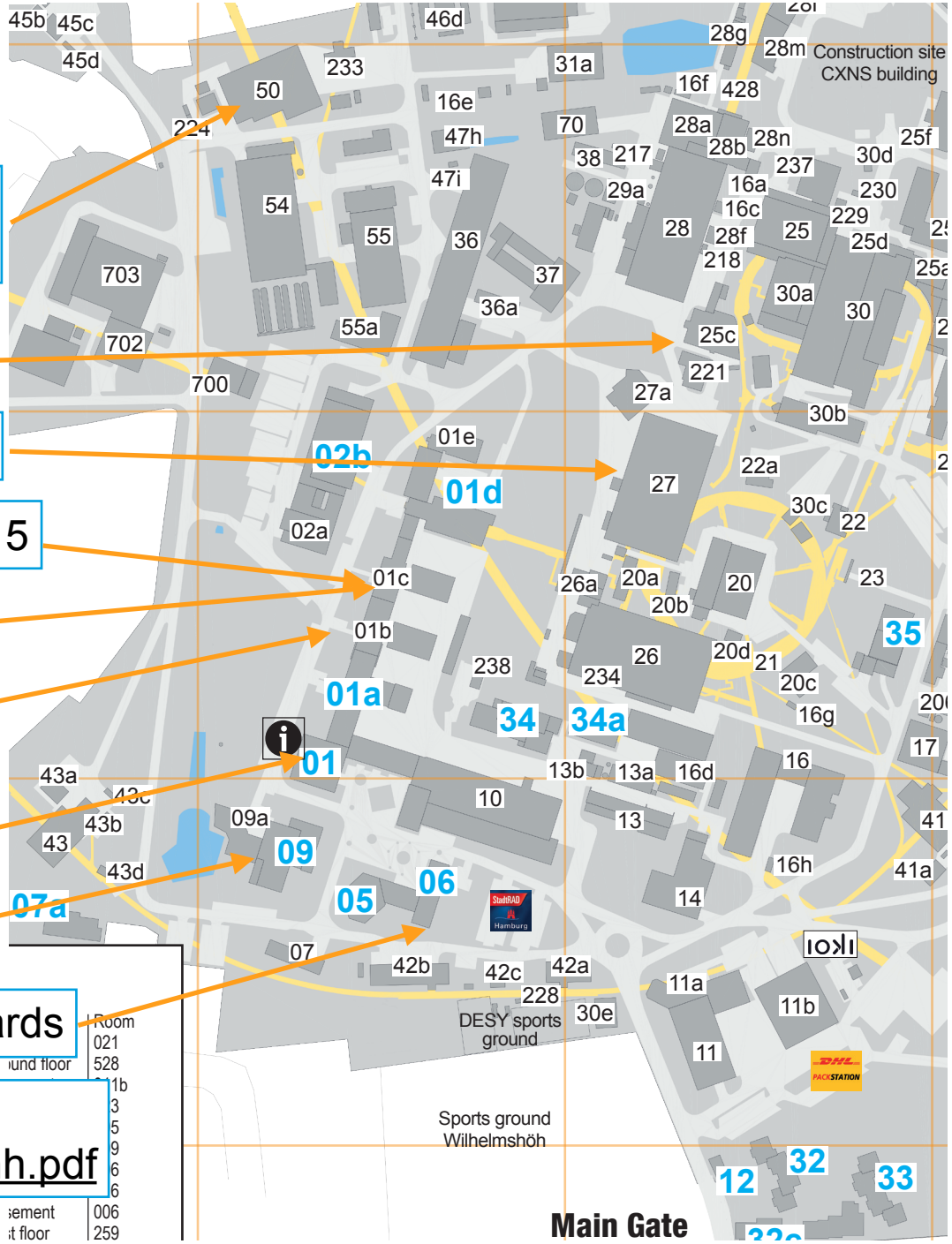
Registration | **Coffee** | Lectures

e Lab (basement)

Sem 1b

ATM | Reception | Lunches | Canteen

Hostel Payment | Access Cards



Campus Map:
http://www.desy.de/content/desymaps/gelaendeplan-eng-hh.pdf

Practical Information

Good To Know

Registration and Payment

Today or tomorrow, coffee area

Fee: 150 € (cash only, ATM in canteen building)

Hostel Payment

Building 6, by Thursday 27.2., 0900-1300

Wireless

EDIT2020 (password at registration), or eduroam

Coffee

always here in front of Lecture Room

Lunches

Canteen, open 1130-1400, on your own

Group Photo

Afternoon Coffee Thursday 27.2.

Safety first!

Safety lecture today obligatory for everyone

Access cards for Test Beam area etc

"DACHS cards"

Building 6, room 110 , bring your ID

Today - but do not go all at once, please

Picture will be taken

Emergency phone number

2500 from any DESY phone

+49 40 8998 2500 from your mobile

Team speaks English and knows localities

Social Events

Fun After Work

Welcome Reception

Tonight, 1800-2000

Canteen Extension

Drinks & Food

Table Soccer ("Kicker") Championship

This Friday, 1800

Canteen Extension

Drinks

The Week-end is free

Weather:

https://www.wetteronline.de/wetter/hamburg

Rain forecast

https://www.wetteronline.de/wetterradar/hamburg/

Social Dinner

Next week Thursday, 1930-2330

StrandPauli, strandpauli.de

Social Events

Fun After Work

Welcome Reception

Tonight, 1800-2000

Canteen Extension

Drinks & Food

Table Soccer ("Kicker") Championship

This Friday, 1800

Canteen Extension

Drinks

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Weather:

https://www.wetteronline.de/wetter/hamburg

Rain forecast

https://www.wetteronline.de/wetterradar/hamburg/

Social Dinner

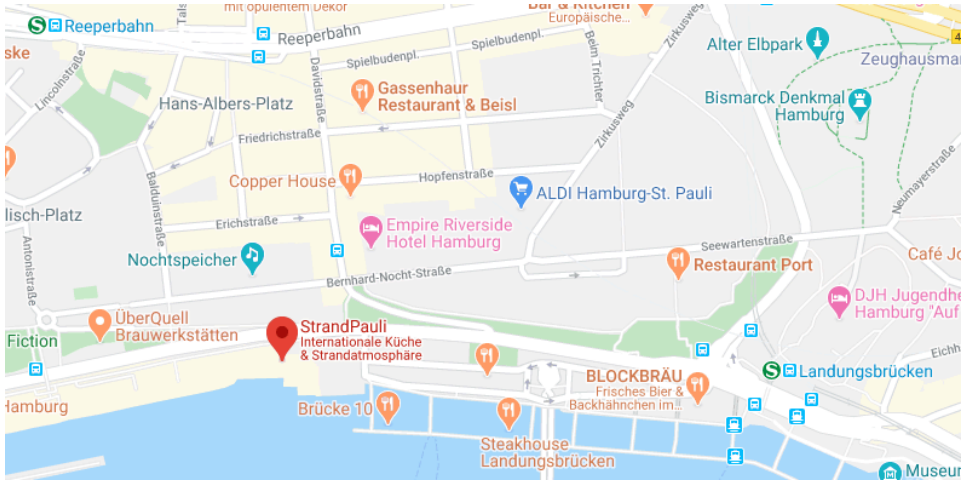
Next week Thursday, 1930-2330

StrandPauli, strandpauli.de

Food & Drinks

Leave DESY before 1900

Bus 1 to S Othmarschen, Metro S1 to Reeperbahn or Landungsbrücken, see **hvv.de**, then walk



Contact the Organisers

Whom to ask

General Organisation:

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felix.sefkow@desy.de marcel.stanitzki@desy.de

Secretary, Registration:

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Lecturer support, visa matters:

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Dinner:

carolin.groetzinger@desy.de

Soccer Championship:

daniel.heuchel@desy.de

Suggestions or complaint me, please:

felix.sefkow@desy.de

Enjoy the School!