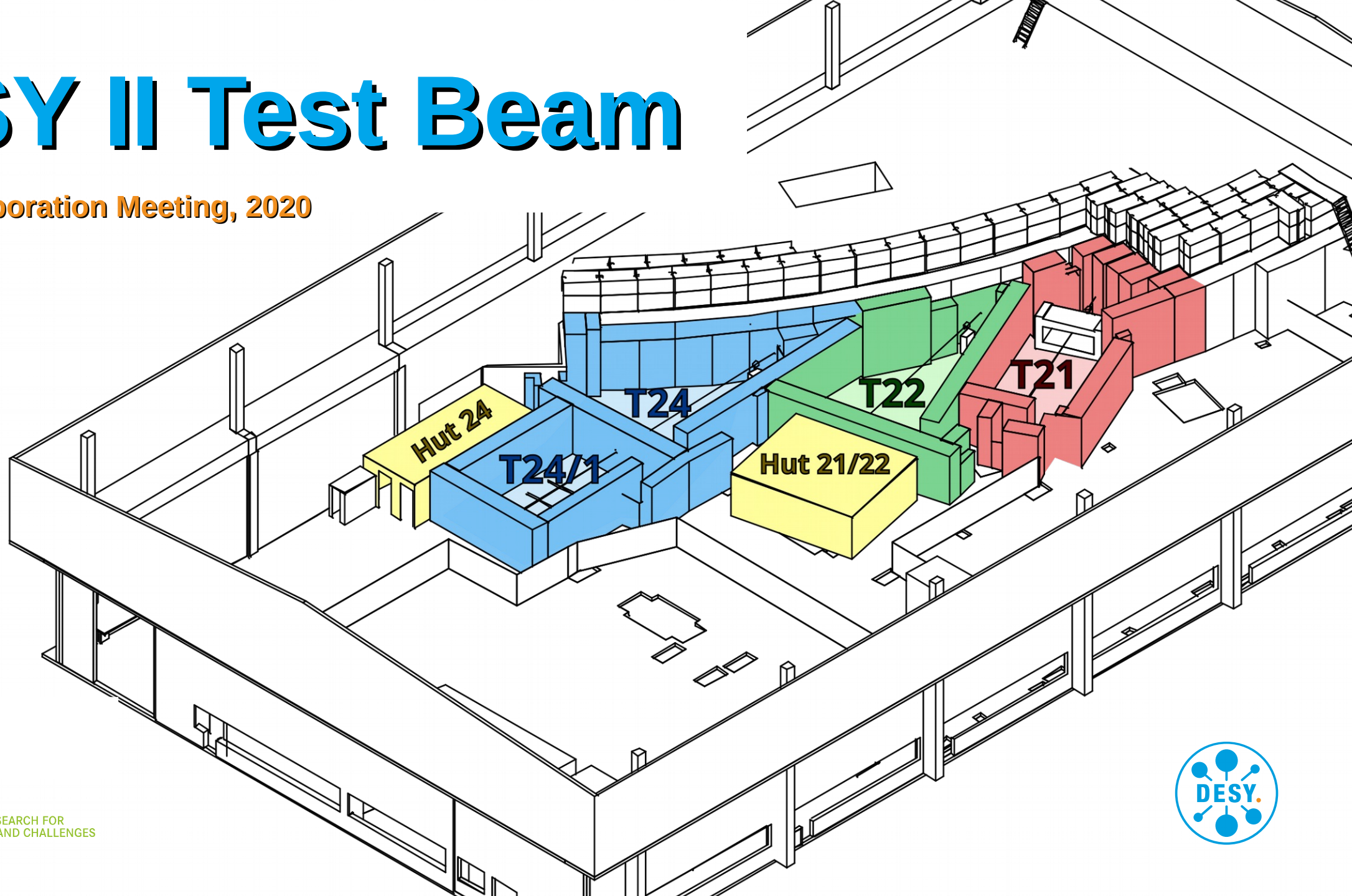


DESY II Test Beam

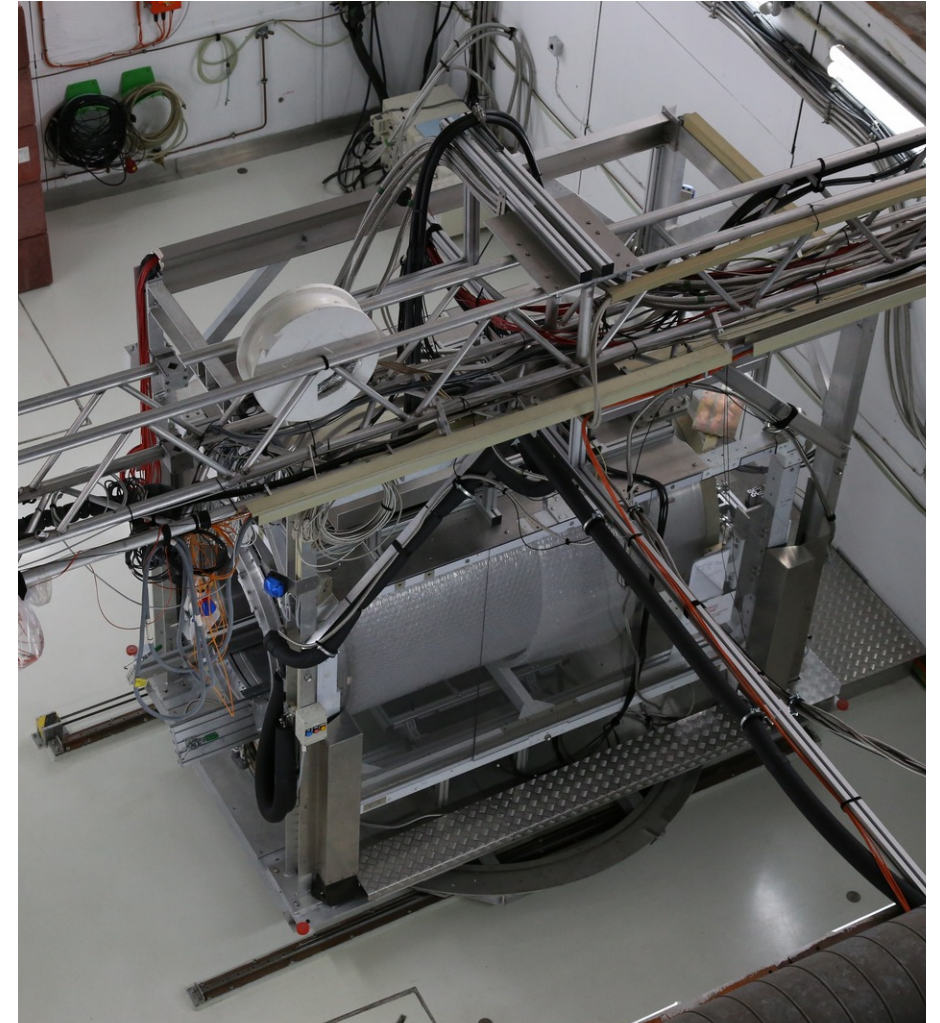
LCTPC Collaboration Meeting, 2020

Ralf Diener



Developments at the DESY II Testbeam Facility

- Ongoing
 - (Lycoris telescope in own, separate presentation)
 - Re-design / -build sled for large prototype
- Todo
 - Install and align alignment lasers in T24/1
 - Inclusion of stage and prototype position in SC
 - Automatic switching of PCMAG warning lamps
- Test beam general
 - Power distributions for test beam being installed; planning started for the rest of the hall
 - New hall windows planned to be installed till this summer
 - New user hut (to replace blue container) on the list
 - New primary targets being in development



Test Beam Schedule

Overview last years + 2020

- 2017: No LCTPC testbeam
- 2018
 - Some tests for external telescope
 - November: Micromegas modules with mesh at 0 V and space frame end plate
- 2019: No LCTPC testbeam
 - Lycoris external telescope tests
 - T2K in June
- 2020: busy again with CERN shutdown and LHC detector upgrades still going on (*T24 using 3rd telescope*)
 - Fully (over-)booked: people on waiting list
 - Scheduled: Lycoris, CEPC-TPC, LCTPC-Pixel, T2K

Week	Date	TB21		TB22		TB24/1		TB24	
		DATE	DURATION	DATE	DURATION	PC MAG	TELESCOPE IN PC MAG	AREA	AREA
6-Jan-20	2	Shutdown							
13-Jan-20	3								
20-Jan-20	4								
27-Jan-20	5								
3-Feb-20									
10-Feb-20		Startup		Startup		Startup		Startup	
17-Feb-20	8	EDIT-2020	X	ALICE-mTower	X	EDIT-2020		Mu3e	X
24-Feb-20	9	EDIT-2020	X	CLIC Pixel	X	EDIT-2020		CMS-Pixel-Phase2	X
2-Mar-20	10	FCAL	X	Belle-II PXD	X			CMS-Pixel-Phase2	X
9-Mar-20	11	FCAL	X	Bonn-SiLAB	X	Lycoris			
16-Mar-20	12	CMS-Pixel-Phase2	X	ATLAS-ITk-Pixel	X			CALICE AHCAL	X
23-Mar-20	13	CMS-Pixel-Phase2	X	ATLAS-ITk-Pixel	X			CALICE-SiW-ECAL	X
30-Mar-20	14	MBI	X	ATLAS-HGTD	X			AFP-TOF	X
6-Apr-20	15	MBI	X					Telescope Dev	X
13-Apr-20									
20-Apr-20	17	CMS-Pixel-Phase2	X	Mu3e	X			CLIC Pixel	X
27-Apr-20	18	CMS-Pixel-Phase2	X	ATLAS-ITk-Strips	X			TPEX	
4-May-20	19	CMS Outer Tracker	X	ATLAS-ITk-Strips	X			TPEX	
11-May-20	20	CMS Outer Tracker	X	ATLAS-ITk-TJCMOS	X			LHCb-ECAL	X
18-May-20	21	Telescope Dev	X	ATLAS-ITk-Pixel	X			LHCb-ECAL	X
25-May-20				Setup Time					
1-Jun-20	23	MBI	X	ATLAS-ITk-Strips	X			CALICE AHCAL	X
8-Jun-20	24	CLIC Pixel	X	ATLAS-ITk-Strips	X	CEPC-TPC			
15-Jun-20	25	CMS-Pixel-Phase2	X	Mu3e	X			TOTEM	X
22-Jun-20	26	CMS-Pixel-Phase2	X	ATLAS-HGTD	X			NICA-SIPM	
29-Jun-20	27	FCAL	X	ATLAS-HGTD	X			NICA-SIPM	
6-Jul-20									
13-Jul-20		Summer Shutdown							
20-Jul-20									
27-Jul-20	31								
3-Aug-20									
10-Aug-20	33	MBI	X	Summer Students	X	LCTPC-Pix	X		
17-Aug-20	34	ATLAS-ITk-TJCMOS	X	CEPC-ECAL	X			CALICE AHCAL	X
24-Aug-20	35	CLIC Pixel	X	CEPC-ECAL	X			CEPC-STCF	X
31-Aug-20		CMS-Pixel-Phase2	X	MUonE	X			CEPC-STCF	X
7-Sep-20	37	CMS-Pixel-Phase2	X	ELAD	X			BCGS	X
14-Sep-20									
21-Sep-20	39	BL4S	X	ATLAS-HGTD	X			CMS-Pixel-Phase2	X
28-Sep-20	40	BL4S	X	ATLAS-HGTD	X			CMS-Pixel-Phase2	X
5-Oct-20	41	ELAD	X	ATLAS-ITk-Pixel	X	T2K			
12-Oct-20	42	Mu3e	X	ATLAS-ITk-Pixel	X	T2K			
19-Oct-20	43	CMS Outer Tracker	X	CALICE AHCAL	X			HEP for Teachers	
26-Oct-20	44	CMS Outer Tracker	X	ATLAS-ITk-TJCMOS	X			Mimosis	
2-Nov-20				Setup Time					
9-Nov-20	46	CMS-HGCAL	X	ATLAS-ITk-Strips	X			TOTEM	X
16-Nov-20	47	CLIC Pixel	X	ATLAS-ITk-Strips	X			DualReadout-FA	
23-Nov-20	48	CMS-Pixel-Phase2	X	ATLAS-HGTD	X			DualReadout-FA	
30-Nov-20	49	CMS-Pixel-Phase2	X	CALICE-SiW-ECAL	X			ATLAS-ITk-Pixel	X
7-Dec-20	50	ELIOT		Belle-II VXD	X			ATLAS-ITk-Pixel	X
14-Dec-20	51	ELIOT		Belle-II VXD	X			Mimosis	
21-Dec-20	52								
28-Dec-20	53	Shutdown							

Future / PETRA IV

- Multi-bunch
 - Installed and was in operation in user mode
 - Increase not as much as hoped for; some effects not fully clear

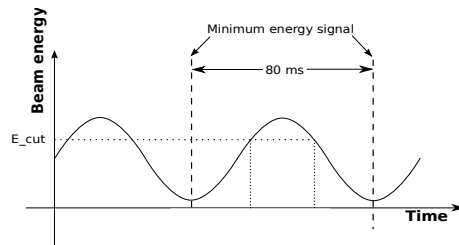
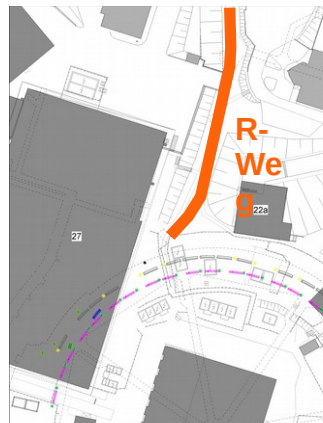


Fig.: DESY II energy cycle

- 4th beam line
 - Proof of principle tests slightly delayed
 - R-Weg cleaned up and now being equipped (network, beam dump, interlock etc.)
 - Final installations probably in coming summer shutdown



- Petra IV
 - Project is gaining speed
 - With DESY IV as envisaged tricky to generate test beams as it is done now: not much space, requirements on beam quality
 - Options:
 - Find ways to incorporate test beam creation in this scheme?
 - Keep DESY II and test beam running as it is in parallel? Costs/Budget?
 - Necessity/importance of test beams established
 - Many things/options being discussed

Education/Outreach

- Beamline For Schools <https://beamlineforschools.cern>
 - Teams of high school students can propose experiments at a beam line
 - 2 winning teams can perform their experiments supported by scientists
- Very successful project at CERN, during LS2 DESY is hosting
 - Big success last year
- Registration for 2020 until March 31st
- EDIT2020 <https://edit2020.desy.de>
 - Gas detectors in lab only, not at test beam
 - Getting closer, preparations need to be finished
 - GEM + GridPix



EDIT-2020
Excellence in Detector and Instrumentation Technologies
School for Young Researchers

17-28 February 2020
DESY, Hamburg

EDIT is a school devoted to young researchers, in their graduate studies or in their first year as post docs, seeking to acquire a deeper knowledge on the major aspects of detectors and instrumentation technologies for particle physics.

The school comprises lectures and four courses with hands-on experiments, including beam tests, on:

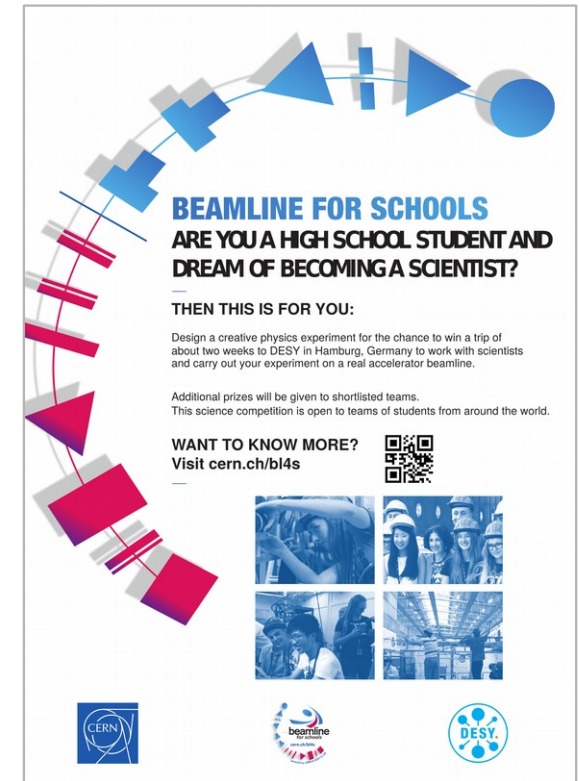
- Silicon sensors
- Silicon systems
- Calorimetry
- Gas detectors

International Advisory Committee:
P. Barrera (CERN), A. Calde (CERN), L. Field (JLab),
A. Hristova (DESY), P. Kitchin (DESY),
J. Marsh (DESY), W. Ostera (DESY), L. Rosenberg (DESY),
R. C. Schaefer (CERN)

Local Organizing Committee:
B. Blum, J. Brunschweiler, D. Eickhoff,
L. Heitsch, J. M. Krieger, A. Krieger, C. Krieger-Petersen,
D. Schiller, F. Scharf, M. Storz

Deadline for Applications: 25 August 2019
<http://edit2020.desy.de>

2020 EDIT





BEAMLINE FOR SCHOOLS
ARE YOU A HIGH SCHOOL STUDENT AND DREAM OF BECOMING A SCIENTIST?

THEN THIS IS FOR YOU:

Design a creative physics experiment for the chance to win a trip of about two weeks to DESY in Hamburg, Germany to work with scientists and carry out your experiment on a real accelerator beamline.

Additional prizes will be given to shortlisted teams.
This science competition is open to teams of students from around the world.

WANT TO KNOW MORE?
Visit cern.ch/bl4s



CERN

beamline

DESY

Call for your Support

- We have to justify the test beam facility
- Please always include the following acknowledgment sentence in **all publications, presentations and posters** based on data taken at the DESY II test beam:

"The measurements leading to these results have been performed at the Test Beam Facility at DESY Hamburg (Germany), a member of the Helmholtz Association (HGF)".

- Also, don't forget the [AIDA\(2020\) acknowledgments](#) where appropriate:
"This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement no. 654168."
or the short version *"Supported by the H2020 project AIDA-2020, GA no. 654168."*

~~Especially if you received support by the transnational access
... also this support program needs to be justified~~

Links and Information

- Web page: testbeam.desy.de
- Announcements mailing list:
lists.desy.de/sympa/subscribe/testbeam-info
(calls for beam time requests come via this!)
- General test beam paper:
"The DESY II test beam facility"
NIMA, Volume 922, 1 April 2019, Pages 265-286

- More links, documents, information and calendar on the web page