

## **DESY testbeam**

Fred Hartjes NIKHEF

Nikhef/Bonn LepCol meeting September 21, 2020

#### **Schedule 15 September (not modified for our period)**

		-								-
25-May-20	22			Setup Time						
1-Jun-20	23	CMS-Pixel-Phase2	x	MBI	х					
8-Jun-20	24	CMS-Pixel-Phase2	X	MBI	х			Telescope-Dev	х	
15-Jun-20	25	CMS Outer Tracker	х	Telescope-Dev	х			ALICE-ITS3	х	
22-Jun-20	26	CMS-Pixel-Phase2	х	Telescope-Dev	х			CMS-Pixel-Phase1		
29-Jun-20	27	CMS-Pixel-Phase2	х	ATLAS-ITk-Pixel	Х			Mu3e	X	
6-Jul-20	28									
13-Jul-20	29	Summer Shutdown								
20-Jul-20	30									
27-Jul-20	31	BL4S	Х	Belle-II PXD	х			CLIC Pixel	х	
3-Aug-20	32	MBI	х	Belle-II PXD	Х			Lycoris	X	
10-Aug-20	33	CMS Outer Tracker	х							
17-Aug-20	34	CALICE AHCAL	х	CMS-Pixel-Phase1				CMS-HGCAL-Sci	х	
24-Aug-20	35	CLIC Pixel	х					ALICE-ITS3	х	2
31-Aug-20	36	CMS-Pixel-Phase2	х					AFP-TOF		es l
7-Sep-20	37	CMS-Pixel-Phase2	х					AFP-TOF		5
14-Sep-20	38									l C
21-Sep-20	39	BL4S	х					LHCb-Luminometer		<u> </u>
28-Sep-20	40	BL4S	х	ATLAS-HGTD	х			CMS-Pixel-Phase2	x	e
5-Oct-20	41	ATLAS-ITk-Pixel	х	ATLAS-HGTD	х	Т2К				<u></u>
12-Oct-20	42	ATLAS-ITk-Pixel	х	Mu3e	х	Т2К				Ā
19-Oct-20	43	LHCb-MightyPix	х	CALICE AHCAL	х	LCTPC-Pix	X	HEP for Teachers		Ξ
26-Oct-20	44	CMS OT 2S	х	ATLAS-ITk-TJCMOS	х	LCTPC-Pix	х			6
2-Nov-20	45			Setup Time						Ę
9-Nov-20	46	CMS-HGCAL	х	ATLAS-ITk-Strips	Х			TOTEM	X	
16-Nov-20	47	CLIC Pixel	х	ATLAS-ITk-Strips	х			LHCb-ECAL		ď
23-Nov-20	48	CMS-Pixel-Phase2	x	ATLAS-HGTD	х			LHCb-ECAL		
30-Nov-20	49	CMS-Pixel-Phase2	х	CALICE-SIW-ECAL	х			ATLAS-ITk-Pixel	х	
7-Dec-20	50	ELIOT		Belle-II VXD	х			ATLAS-ITk-Pixel	х	
14-Dec-20	51 Beam 61 15/120500	ELIOT		Belle-II VXD	Х			ALICE-ITS3	X	
21 Dec 20	52									

Nił

28-Dec-20

Shutdown

#### **Corona issues**

- Noord Holland is now a risk zone for Germany and DESY
  - RKI decision
- 14 day quarantine in Germany is required before entering DESY
- But DESY offers a possibility to avoid this
- => testbeam may be possible, but travelling is much more complicated



#### **DESY regulation: entering from a risk zone**

Excluded from the prohibited access are persons who can prove by submission of the test result in accordance with the official regulations applicable in Hamburg or Brandenburg that they have been tested negatively for the infection with the corona virus SARS-CoV-2 within 48 hours before entering from abroad or the respective German district.

Furthermore, these persons are obliged to have an examination and medical assessment carried out by the DESY Medical Service (<u>betriebsarzt@desy.de</u>, -2171 immediately after entering the campus. If risk-relevant behavior or physical symptoms provide sufficient indications for the risk of infection with the corona virus SARS-CoV-2, a 7-day access ban to the DESY premises can be issued despite the negative test result.

It is strongly recommended that you contact the DESY Medical Service by telephone (<u>betriebsarzt@desy.de</u>, -2171) **before** travelling from the risk area or the inner-German district in order to clarify at an early stage a possible access ban due to risk-relevant behavior. The specific rules of the exception are set out in Appendix III. Please observe the specific requirements of the federal states.

DESY guests from risk areas or corresponding inner-German districts, who have been banned from access for 7 days as a result of the check by the DESY Medical Service, are recommended to go into self-isolation. The DESY hostel is not suitable for this. Users at FLASH or PETRA III are supported in their search for accommodation by the DESY Photon Science User Office if necessary (photon-science.users-office@desy.de, -2368). All other guests should contact the International Office if necessary (international.office@desy.de, -3401).

### **Implications for us**

- You **first** have to organize a Corona test in the Netherlands
  - When travelling on Sunday, this should be done on the Saturday morning before
- Before departure you should announce your arrival at the 'Betriebsarzt' at DESY
- You are **allowed to enter** the DESY site with a negative corona test certificate not older than 48 hours
- After entering you should go directly to the 'Betriebsarzt' where you will be examined on symptoms of COVID-19
  - Is this possible on Sunday??
- If these **symptoms are diagnosed**, then a 7 days selfisolation is mandatory, NOT in the DESY hostel
  - i.e. if you are suffering from a cold or so, then you have to stay in idleness for the first week in some hotel outside DESY or you should go home



levant infection t must be observed

- If possible, avoid risk-relevant behavior, e. g. attending large events, at least 7 days before departure from the risk region or the corresponding inner-German district.
- 2. Immediately before leaving the risk area or the corresponding inner-German district, it is strongly recommended to contact the DESY Medical Service by telephone in order to clarify a possible access ban to the DESY premises due to riskrelevant behavior at an early stage. Please arrange a telephone appointment by e-mail to <u>betriebsarzt@desy.de</u>.
- 3. Have a molecular biological test for the presence of an infection with the coronavirus SARS-CoV-2 carried out no more than 48 hours before entry into the Federal Republic of Germany or before entry from the corresponding inner-German district.

For reasons of reliability, the test must have been carried out in a member state of the European Union or in a state with comparable quality standards. The states with comparable quality standards are published by the Robert Koch Institute at

https://www.rki.de/DE/Content/InfAZ/N/Neuartiges\_Coronavirus/Tests.html (See website information for English version.)

Immediately after entering the campus (only permissible if the molecular biological test was negative), a check and medical assessment must be carried out by the DESY Medical Service. The DESY Medical Service should be informed of the visit in advance by email (<u>betriebsarzt@desy.de</u>) or by telephone (-2171). Based on the check of the riskrelevant behavior and the health condition, a medical certificate is issued, which confirms the access permission to the DESY premises.

The medical certificate of the DESY Medical Service and the molecular biological test result must be kept for at least 14 days after entry.

All persons entering the country according to the exception regulation shall limit the social and professional contacts to the absolutely necessary minimum until the 14th day after entry.

For questions please contact <u>health.service@desy.de</u>.

#### How to get a corona test certificate

#### **NOT by GGD**

Since you probably have no health issues

#### Easiest is **coronalab.eu** (approved by RIVM)

- Location Coronalab Amsterdam
  - Science Park 106
- PCR test, cost € 150
- Appointment daily except Sunday 8:30 to 11:55
- Certificate mailed on the same day, around 22:00
  - Certificate's timestamp 23:59
  - 48 hours valid when entering Germany/DESY
- So if you want to arrive on Sunday to be in time for the security course on Monday morning, you have to make a test appointment for Saturday morning
- Presently Corona lab does only 42 tests per day in Amsterdam
  - => Very busy now, book the test long time in advance (at least one week)
  - If not possible, try other locations of Corona lab in the Netherlands

#### PCR test voor reizigers

Coronalab biedt een COVID-19 PCR test en PCR certificaat voor reizigers. **Wij zijn een RIVM gevalideerd laboratorium voor COVID-19 PCR testen** en hebben al veel reizigers voor >50 landen geholpen met een PCR test en reisverklaring.

Maak nu een afspraak via **onze online tool.** Je krijgt per mail een bevestiging van de afspraak.



- Maak een afspraak
- PCR test door ISO gecertificeerd en RIVM gevalideerd lab voor COVID-19 PCR testen.
- COVID-19 PCR certificaat die breed wordt geaccepteerd. Veel testlocaties in Nederland!

/ Uitslag dezelfde dag rond 22.00 uur!

## **Travel planning**

- Crew
  - Harry van de Graaf, Fred Hartjes, Peter Kluit, Kees Ligtenberg, Gerhard Raven, Jan Timmermans
  - Persons from Bonn
- **First** week (Oct 19 25)
  - Safety course on Monday October 19
  - Installation and getting our DAQ synchronized with the Bonn Mimosa telescope
  - Only 2 3 persons are needed for this (Kees, Fred, .....)
  - It will be hard to go home in the mean time, you have to stay in Germany for the full testbeam period
- Second week (Oct 26 Nov 1)
  - Safety course on Monday October 26
  - Taking data until Sunday November 1
  - (leaving earlier if we have sufficient data)

#### Way of travel

- We may best travel by own car in view of the Corona issues
  - Better not sharing cars
- Equipment by hired or own car
  - We will have bit less equipment than for other testbeams (no gas bottles)

#### **Time schedule DESY testbeam**



For the first week we are not the main user, so access to the TB24 hut may be limited

• Only two people are allowed at a time

#### **DESY testbeam Hall 2**



- Electrons energy 3 4 GeV
- Rate depending on the applied collimator
- Maximum 5 6 kHz

1.0

particle rate [a.u.] 9.0 70 8.0

0.2

0.0

×

0





2

### Floorplan DESY testbeam TB24/1

- Leak tray with all services on wooden table
- DCS PC Levaard also on that table
- Cable length between leak tray and testbox: ~ 8 m
- We cannot lay our own cables between the hut and our area
  - Only possible when all beams are off
  - We have to use **available cables/tubing**





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## Solenoid magnet in TB24/1

- Remotely movable vertically and sideward (X and Z)
- Super conducting
  - > no running power needed
  - Already cooled down by the predecessor (Paul Colas)
- 1T magnetic field horizontally
- Radiation length magnet wall: 20%
- Inner diameter: 85 cm



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#### **Setup mechanics**

- Completely manufactured and tested
- Components almost non-magnetic
- Detector may be manually (not remotely) rotated by a goniometer over +/- 15°
  - Rotation angle NOT automatically logged
- Beam is always ~ parallel to the detection plane
- DCS PC Levaard
  - Has solid state disk





#### **Remote position control**

- In vertical direction (X coordinate) 3 position ranges of beam particles
  - X = 0 20; 20 40; 40 60 mm
- Horizontal (Z coordinate) 4 position ranges
  - Z = 0 10; 10 20; 20 30; 30 40 mm
- Position ranges not very precise (0.1 0.2 mm), but well reproducible
  - $\sim 30 \ \mu m \ expected$
- All remotely pneumatically controlled
- Positions will be logged on the HV or gas logfile



#### Mimosa

- Supplied by Bonn
- Two groups of 3 detection planes
  - Mounted on the rail system of Nikhef
  - Closest to 8-quad box as possible
- We will use a modified gas envelope
  - **5**0 μm Kapton in and out
  - => minimal mult. scatt.
- Arriving at DESY on October 19??



## **Cabling Mimosa**

- 3 coloured cables visible for each Mimosa plane => 18 in total
  - Yellow, Green, Pink
  - Ethernet cables??
  - Preferably non-Magnetic
- Additional black cable as well
  - Power supply?
  - Type??
- We need 8 m cable length between Mimosa planes and control unit
- The existing Bonn cables may be too short??
  - Checking
- Who will provide the 8 m cables if needed and bundle and label them?
  - Bonn?
  - Nikhef?

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## Reference

# Mounting the testbox in the magnet

- Our setup will be mounted on a frame on rails
- Detector has to be installed at ~
  60 cm from the magnet entrance



