

DESY-II Test Beam Facility

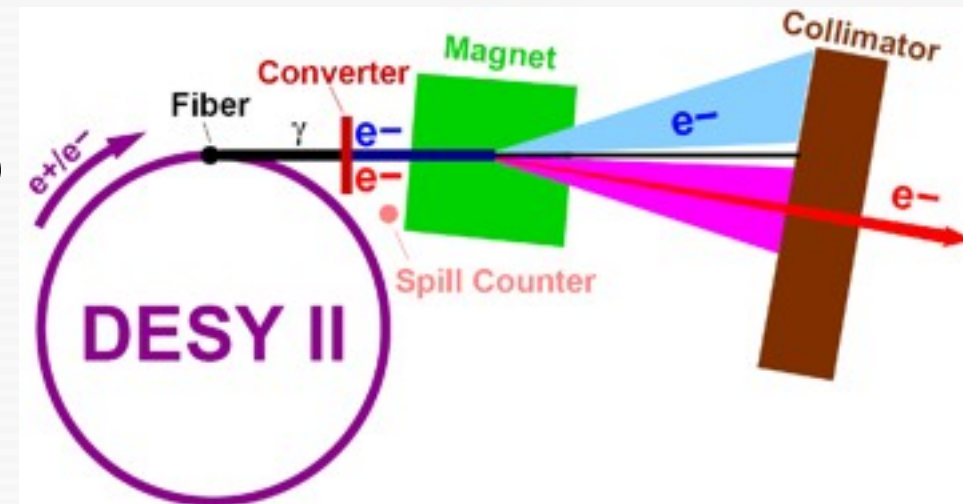
Marcel Stanitzki
for the
DESY Test Beam Coordinators

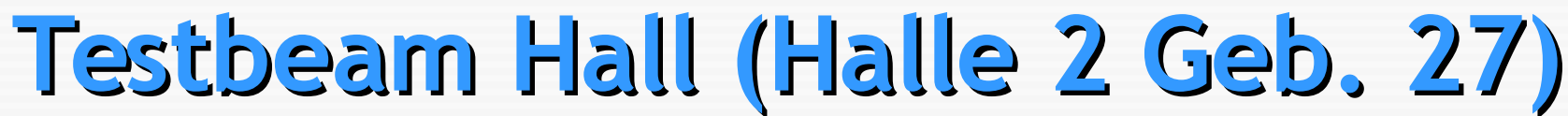




The DESY Testbeam Facility

- Facility fed by DESY-II synchrotron
- Bremsstrahlungs / conversion beam with E_e up to 6 GeV
- Beam momentum steered by magnet current by test beam user.
- Rates depending on beam line, energy, target material, collimator setting and operation.





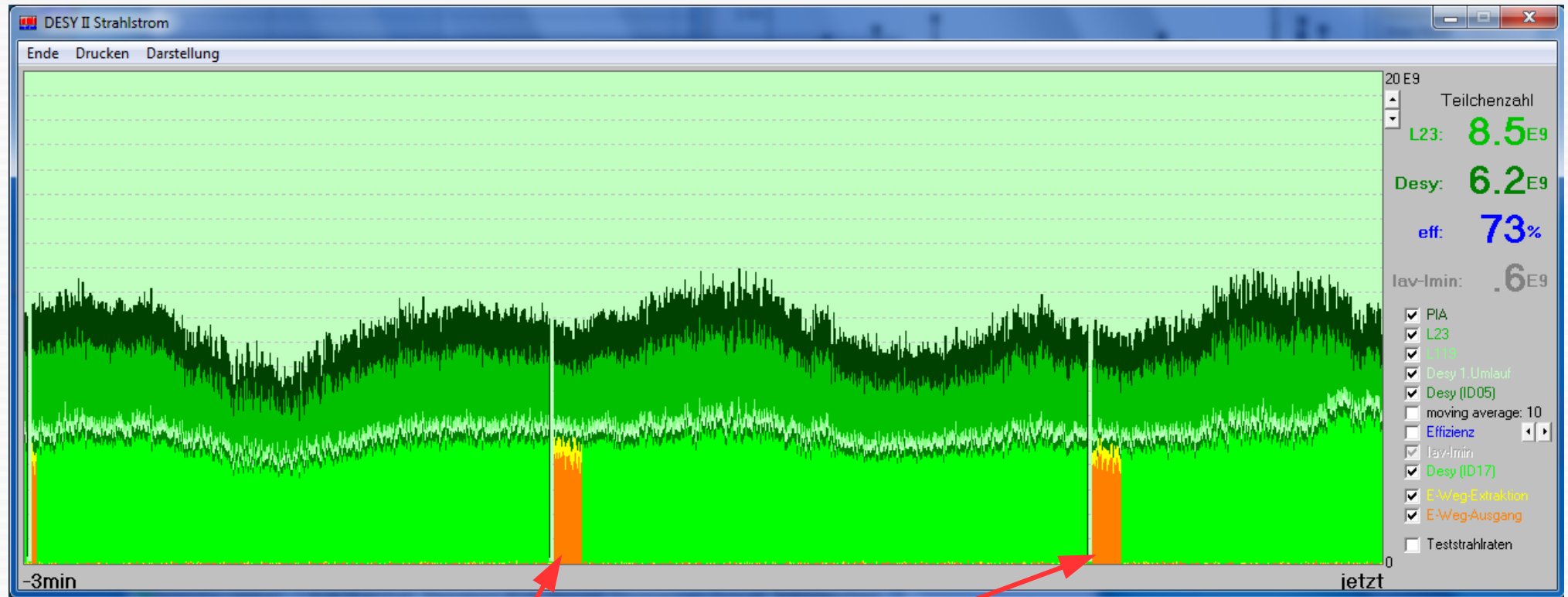


Beam availability

- DESY-II synchrotron
 - $\sim 99\%$ uptime during schedules runs
 - Main purpose: Injector for Petra-III Top-Up
 - Testbeam is parasitic user
- Beam structure
 - 1 MHz clock
 - Basic magnet cycle 12.5 Hz (accelerating from 450 MeV to 6.3 GeV)
 - 1 bunch per fill (30 ps)
- Interruption during Extraction for Petra (sec-min)
 - Otherwise almost DC beam (no spill structure)



PETRA-III Top-Up Mode



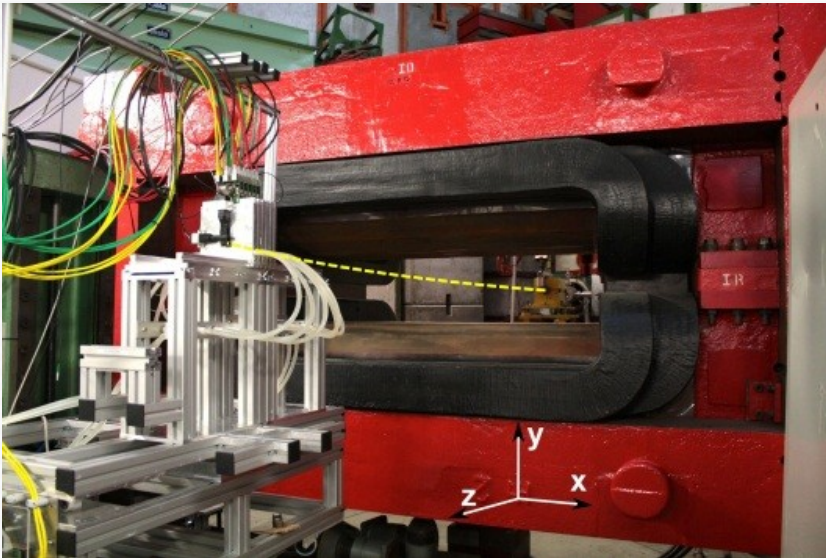
TOP UP



Unique Infrastructure at DESY

- TB21 & 22 both provide a EUDET-style pixel telescope
 - Complete Package (Hardware, Trigger, Reconstruction software)
- Dipole Magnet in TB 21
 - For tracking studies
- 1 T Solenoid for putting detectors in a magnetic fields
 - Internal diameter 85 cm
 - Moveable
 - Possible to install pixel telescopes

Telescopes



- Two Telescope permanently installed at DESY
 - DATURA in TB21
 - DURANTA in TB22
- DURANTA
- Very popular with the users
- Well supported by the Lab



PCMAG Solenoid





Major upgrades for 2015

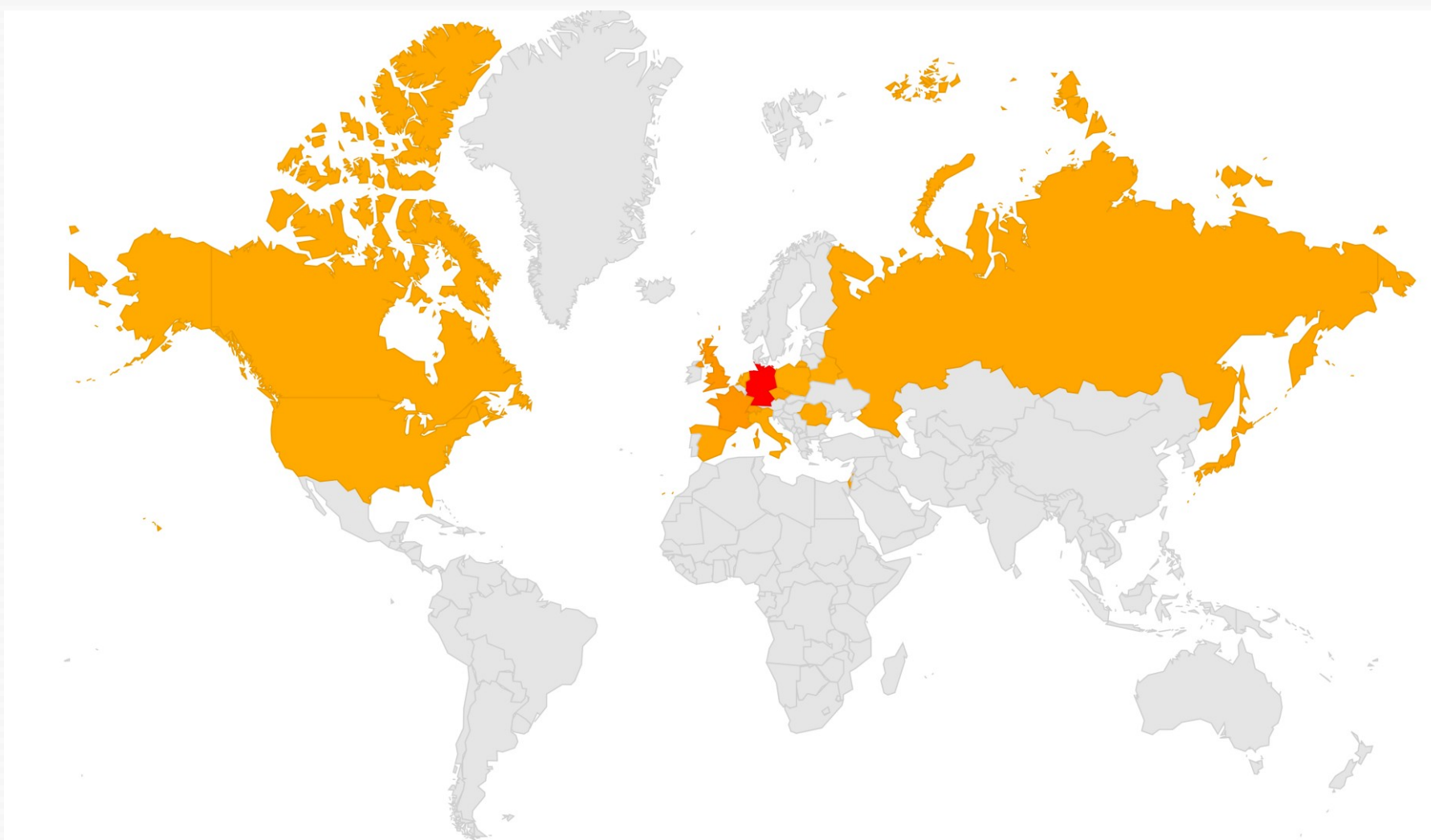
- New Primary targets
- New flooring in the areas
- Second Pixel Beam Telescope permanently installed
- Beam Monitors in the User area
- Video cameras in each area
- Access handled with DACHS system



2015 in numbers

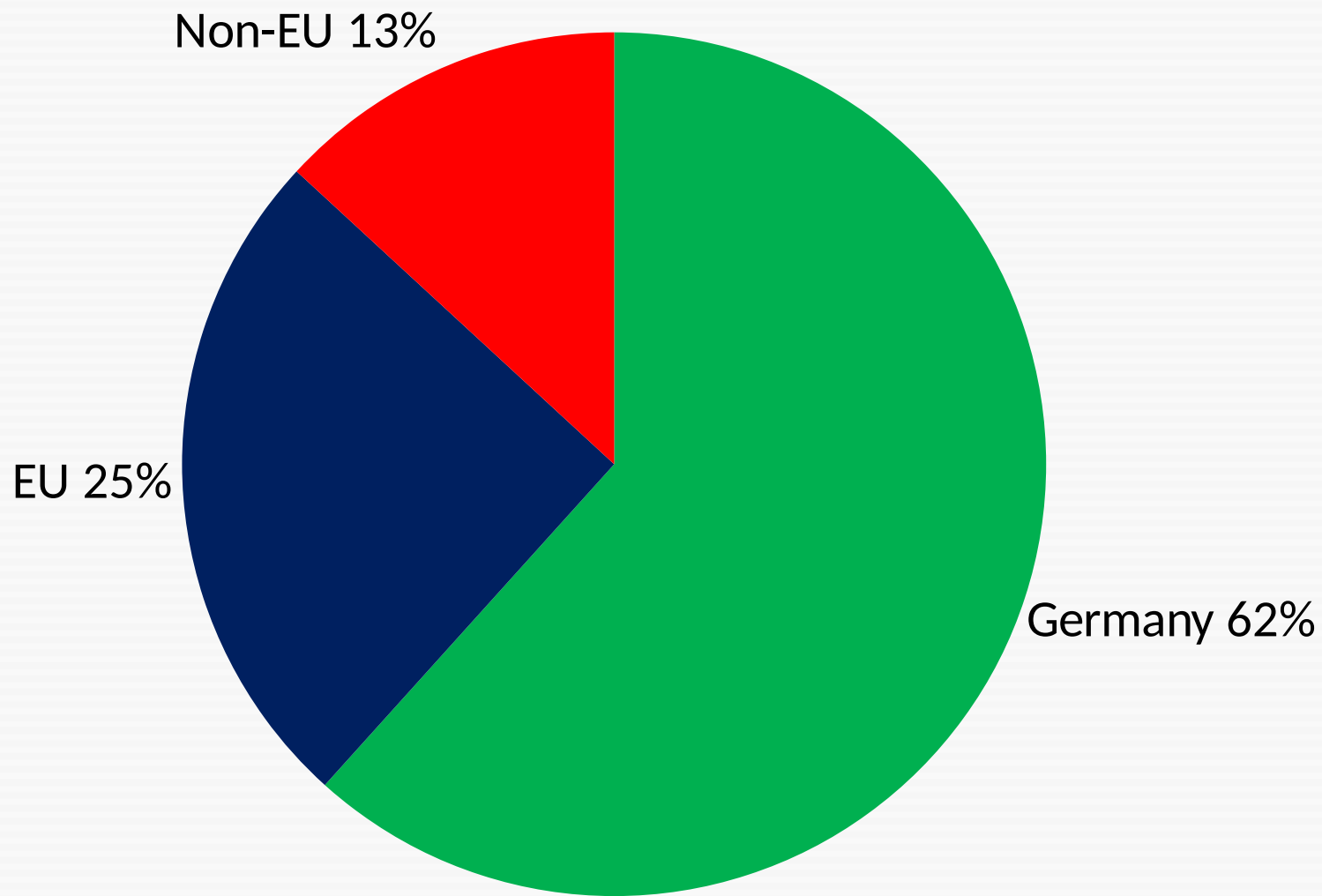
- 43 Weeks of Operation
 - First 6 weeks exclusively for Test Beam
 - 129 user weeks
 - 56 weeks used
- Test Beam Efficiency
 - 57.6 % of beam time used
- User stats
 - 275 Users in Total from 16 countries
 - 50% are students
 - 28 % are new users

User Countries

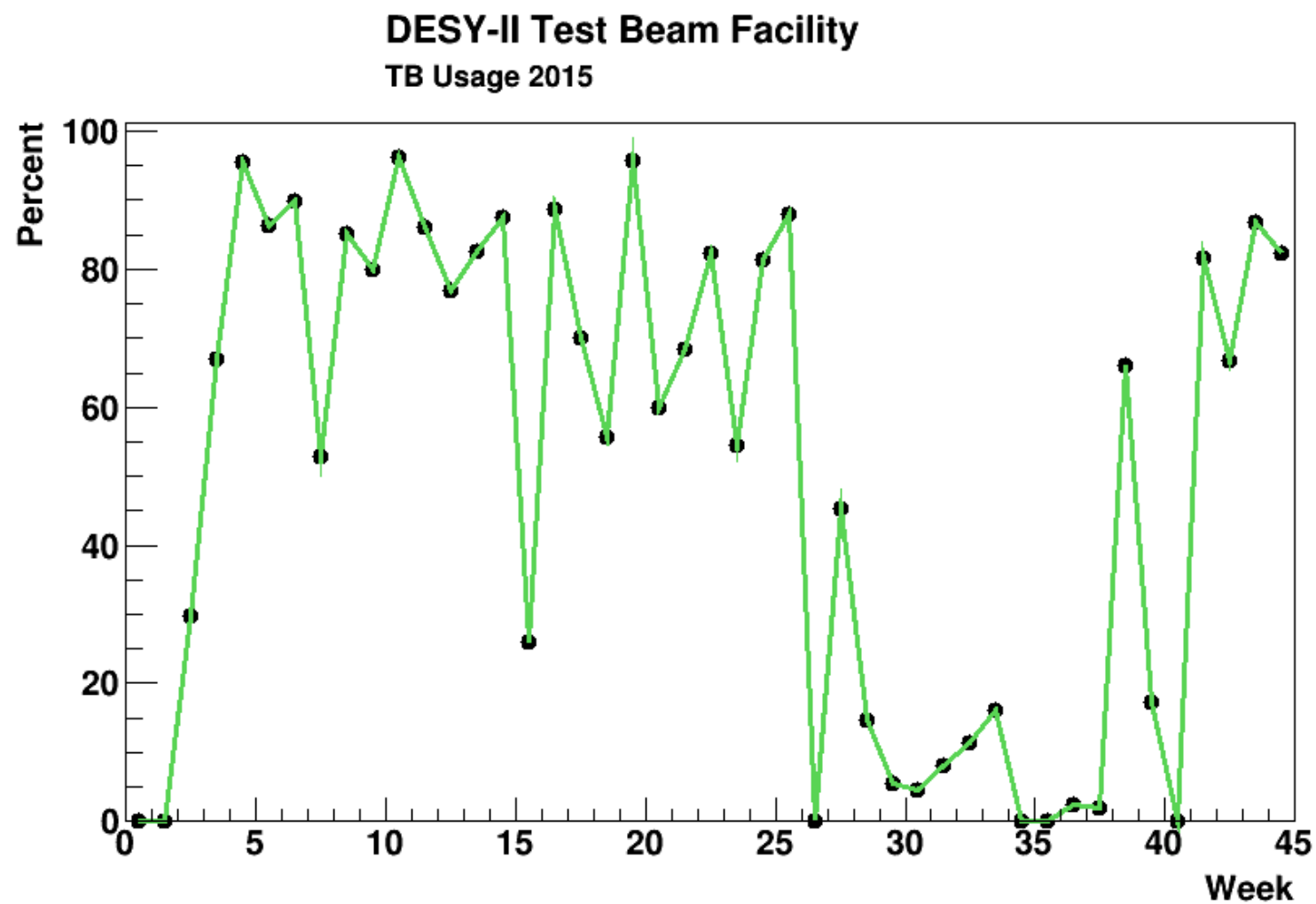




Germany/EU/NonEU



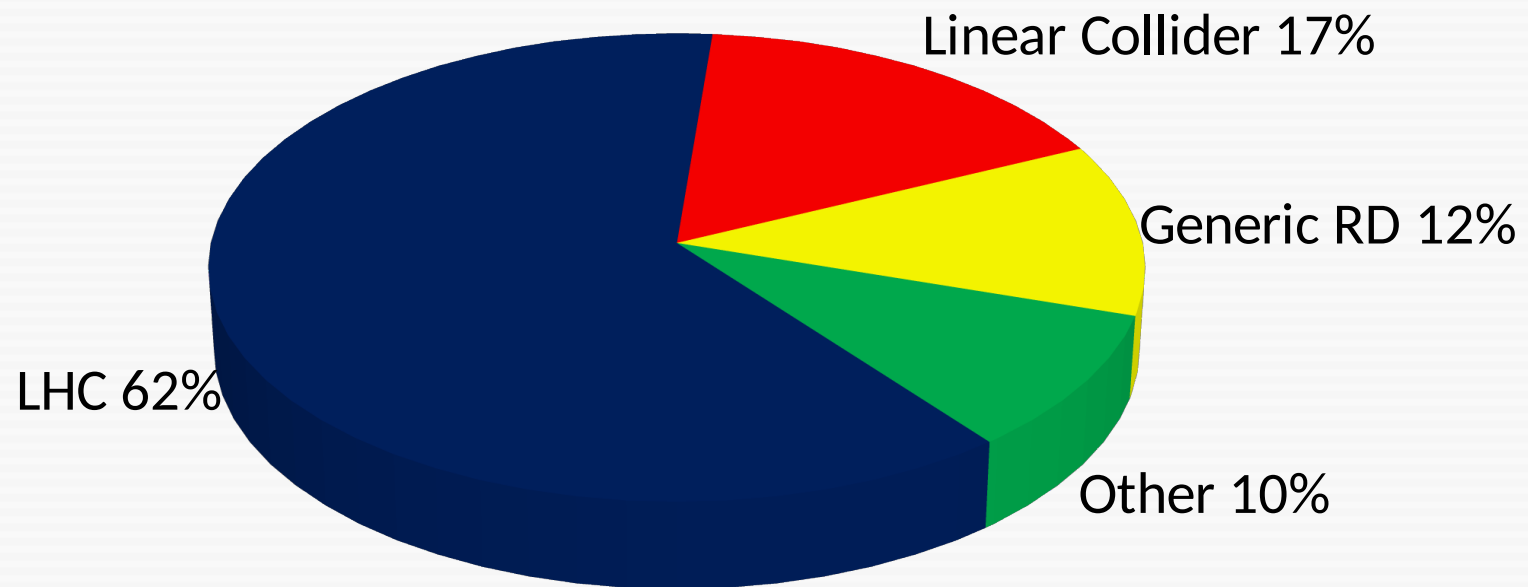
Test Beam Efficiency





Projects in 2015

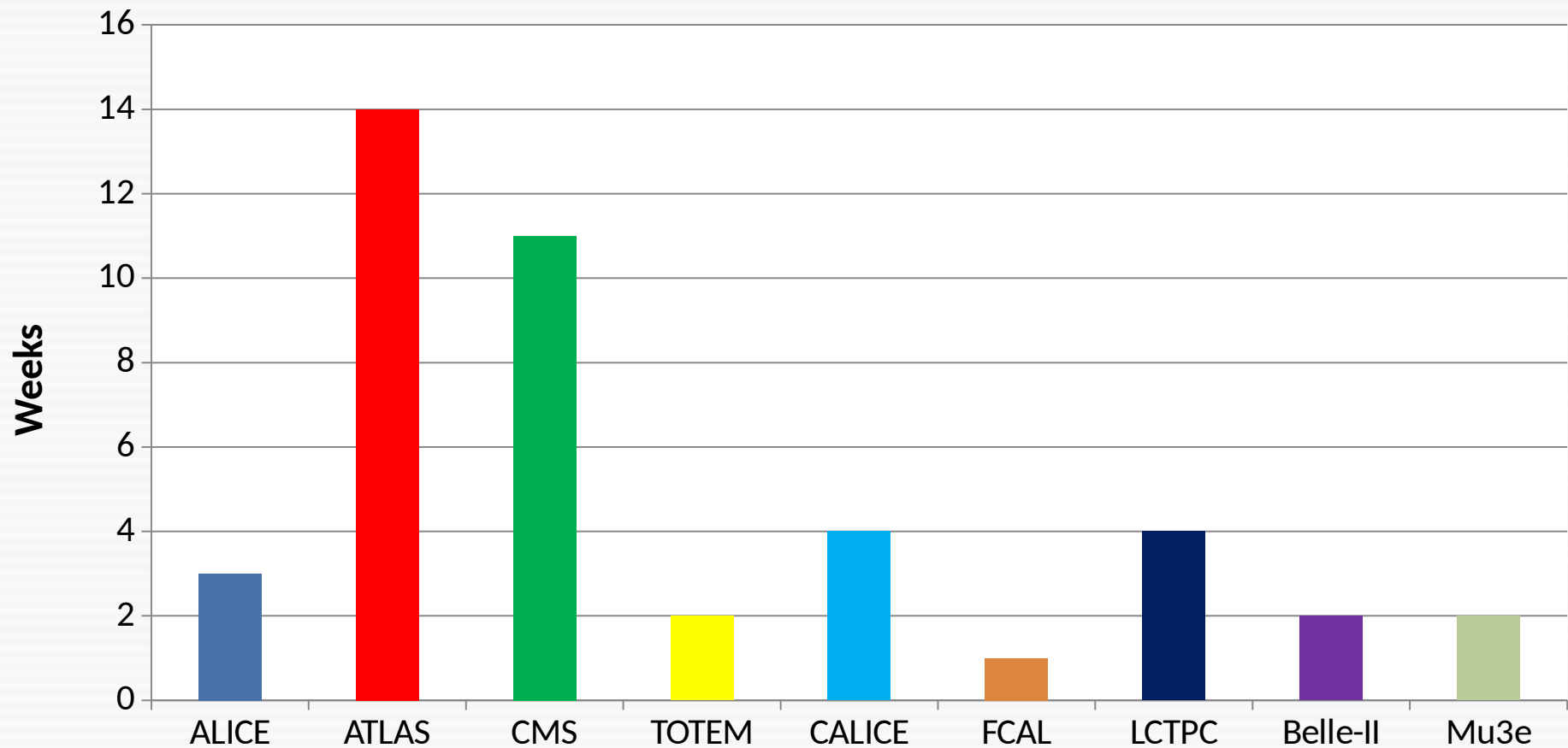
Projects 2015





Experiments 2015

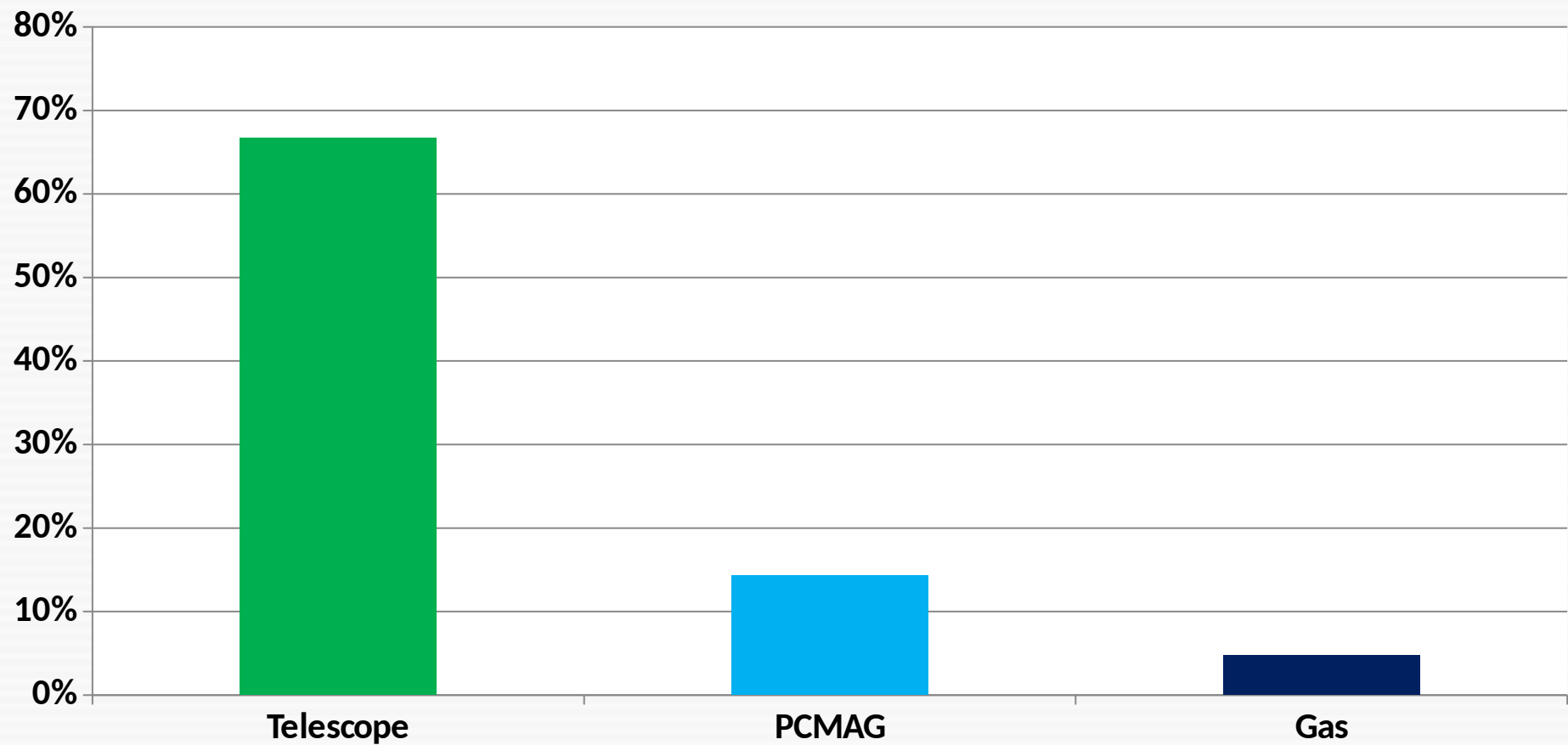
User weeks from experiments 2015





Infrastructures Requests

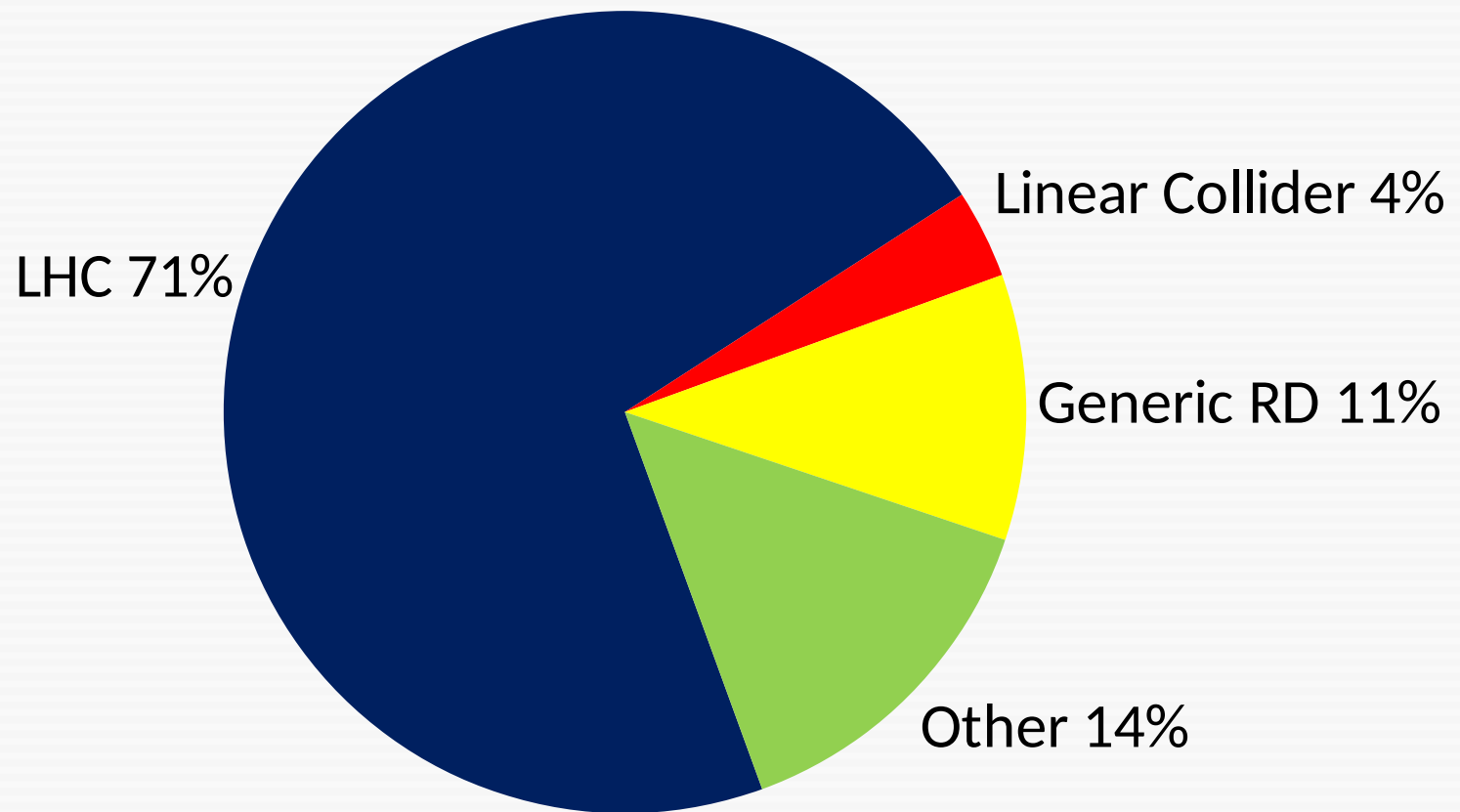
Requested Infrastructure 2015





Telescope Users

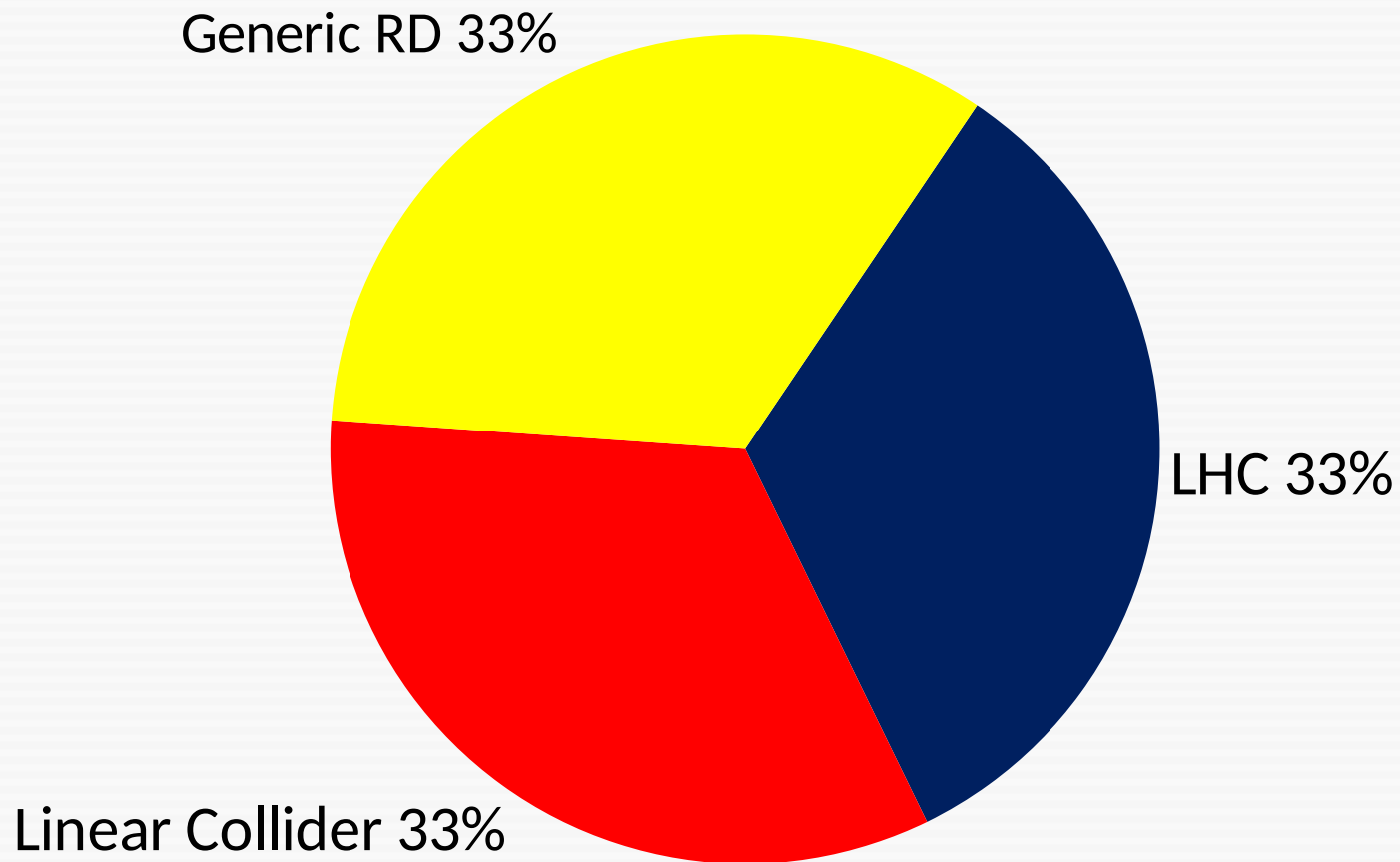
Telescope Usage 2015





PCMAG Users

PCMAG Usage 2015





Shutdown Projects 2015/16

- The shutdown gave us the opportunity to do some improvements (and some cleaning up)
 - Primary Target M&D
 - Further Beam Diagnostics
 - New Telescope control PC's
 - Electrical Safety Upgrades
 - New regulations ...
 - Laser Alignment system
 - New Gas Warning System
- And for 2016
 - Better beam than ever



2016 Test Beam Status & Plans

- Shutdown 2015/16
 - Started in November 2015
- End of Shutdown driven again by PETRA-III extension schedule
 - Instrumentation of beam lines
- Startup of DESY-II
 - March 2016 (during week 10)
- First Test Beam Available
 - 14/03/2016



Safety News

- Updated Safety Course
 - Legal requirements to cover a few more items
- DESY Radiation Safety is preparing a note clarifying how to handle irradiated materials
 - Insist on proper documentation (English/German)
 - They'll not accept shipments without this information
- We have a good track record
 - Let's keep it this way



How to apply for beamtime

- Send an email to
 - `testbeam-coor@desy.de`
- Test Beam coordinators will try to accommodate everybody
- There is an annual call for Test Beam time
 - Subscribe to
<https://lists.desy.de/sympa/subscribe/testbeam-info>
- Lots of information at
 - <http://testbeams.desy.de>
 - Latest Schedule
 - Updates, Instructions



Scientific Accounting

- Acknowledging the use of the facility:
 - 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)
 - Adding **parts of** should be fine ;-)
- Scientific Accounting
 - We now have to keep track of conference talks, proceedings, papers that have used the DESY Test Beam for their results
 - HGF likes to see the “impact” of the facilities it funds
 - Please provide the necessary information



AIDA2020 Transnational Access

- AIDA2020 has successfully started in June
 - Successor of AIDA
- DESY-II Test Beam Facility
 - Increased Funding for Transnational Access
- Reminder
 - Travel funding for non-german groups to come to DESY
- Status
 - 2015 :Already two groups have been supported
 - 2016 Please apply for funding
- Please don't forget the AIDA2020 acknowledgment





AIDA2020 Upgrades

- AIDA2020 is funding improvements for the Test Beam
 - Telescope Support
 - Generic Slow Control/Slow Monitoring system
 - External Silicon reference tracker to be installed inside the PCMAG
- Items 2&3 are going to be installed in 2017
 - Preparation has started
 - Still happy to get feedback on user needs



Summary

- DESY-II Testbeam facility offers
 - 3 beamlines with 1-6 GeV electrons
 - Unique Infrastructures
- 2015/16 Shutdown is currently ongoing
 - Further improvements to the Infrastructure
- 2016 Run
 - Start 14/03/2016
 - End 23/12/2016
- Current Schedule
 - <http://testbeam.desy.de>
- Continued strong support by the DESY directorate