

A record year for the DESY II Test Beam Facility

DESY operates the DESY II Test Beam Facility at the DESY campus in Hamburg where the global user community can test many new detector developments and prototypes. Last year more users than ever before brought their kit to DESY for testing, and 2020 is fully booked as well (even if the operation is suspended for the time being).

The DESY II Test Beam Facility gets its beam from the DESY II synchrotron. Micrometre-thin carbon fibre targets are inserted in the powerful DESY II primary electron beam and generate a beam with an adjustable energy between 1 and 6 GeV, which is perfectly tailored for testing detectors. The three beam lines, located in the historical "Hall 2", can be individually controlled by the user groups. Because it's so easy to use and boasts excellent infrastructure it is a very popular facility within the global user community. One of the key assets are the so-called EUDET-type beam telescopes, a handy and extremely precise device to cross-check the results of the test objects.

As the CERN accelerator complex – thus also the CERN test beams - entered a two-year shutdown in the beginning of 2019, the test beams at DESY are the only multi-GeV test beams available for the user community in Europe. A third EUDET-type beam telescope, AZALEA, was moved from CERN to DESY and installed in beam line 24 to meet the expected demand. In 2019, the test beam facility therefore operated for 40 weeks in total and was completely booked out. A total of 702 users from 31 countries used the facility, setting an all-time record. The telescopes were in high demand, with 3 out of 4 groups requesting their use. The user community comes from particle physics, nuclear physics and beyond.

The largest fraction of groups tested new detectors for CERN's LHC experiments, with almost half of the request driven in particular by the planned high-luminosity detector upgrades. Almost 40% of the users came to DESY for the first time, and around half of the users are students and postdocs. This underlines the key role of the facility as a training ground for the next generation of detector experts.

The use of the beam lines for educational purposes has already part of the mission for several years. Summer students regularly conduct experiments at the test beam with great success, but taking this to the next level, the 2019 edition of the Beamline for Schools (BL4S) competition was hosted at the test beam in close collaboration with CERN.

One record year ending and the next is already looming. With the shutdown of CERN continuing in 2020, the test beam time for 2020 at DESY is already fully booked. In February 2020, DESY hosted the EDIT school one of the most renowned schools for detectors and instrumentation. The participants, mostly students and postdocs, conducted a part of their lab exercises at the test beam, a unique opportunity for them. For the moment, however, test beam operation is suspended because of the corona crisis. If all goes well the BL4S competition will be back at DESY in 2020, and after a year's hiatus, there will again be a teacher education programme, run jointly with the DESY school lab.

The success of the DESY II Test Beam Facility relies heavily on the support from many individuals and groups from the DESY particle physics and accelerator divisions. We would like to take this opportunity to thank everybody involved.

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