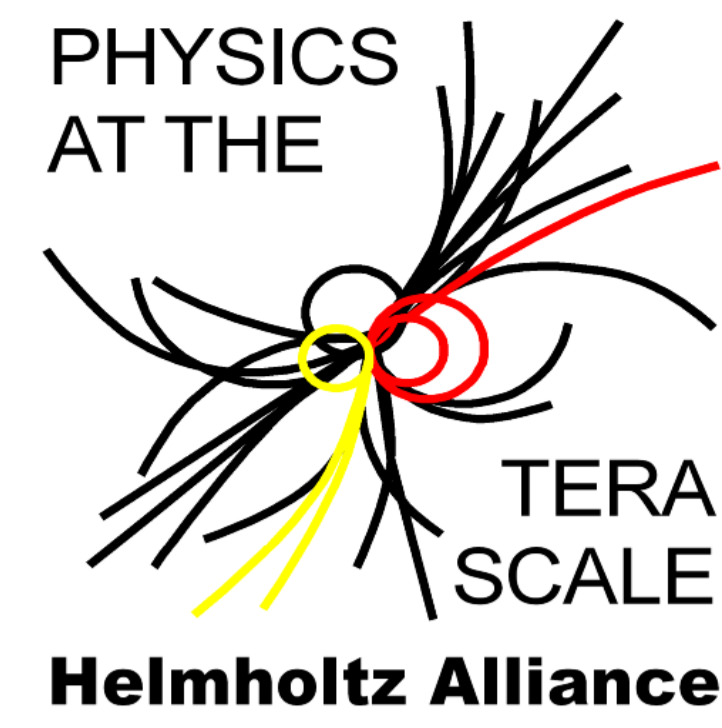


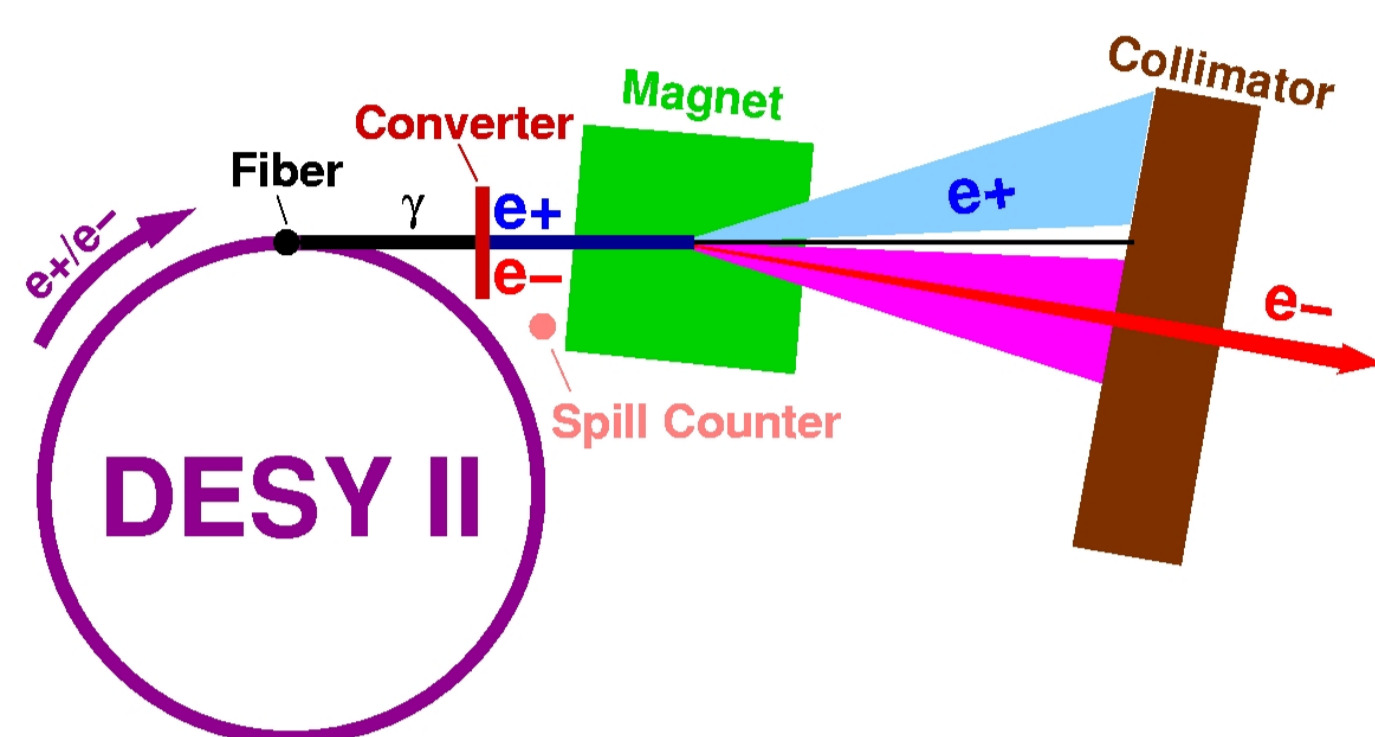
Virtual Detector Laboratory at DESY: System integration and test facilities.



VLDT – Virtual Laboratory for Detector Technologies

The main role of the virtual detector laboratory at DESY is the provision of an integration and test facility for users. This is realised in three main parts: test beams, engineering support and the provision of experimental infrastructure including laboratory space for detector integration. Several examples of these activities are given in this presentation.

DESY II Testbeam



The DESYII test beam can provide three areas with electrons and positrons with energies up to 6 GeV. Control and electronic huts are located close to the experimental areas. It is frequently used by Alliance and Non-Alliance members. The user statistics for the last years are:

	Users	ILC	LHC	Others	Weeks
2005	13	7	3	3	46
2006	16	12	1	3	50
2007	18	15	2	1	37
2008*	6	3	3	0	12
2009	15	11	3	2	42

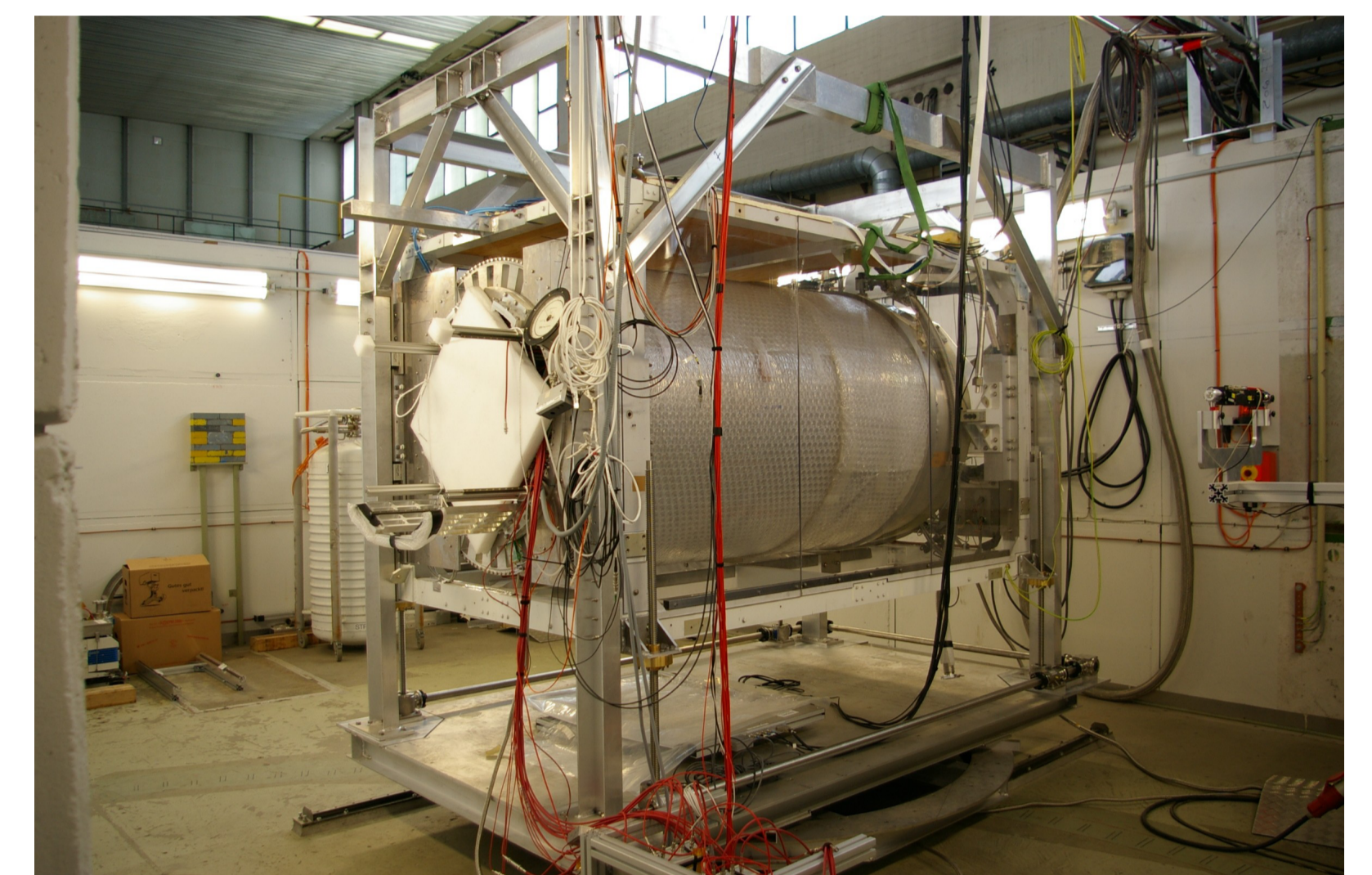
* long shutdown of DESYII

MVD Strip Telescope



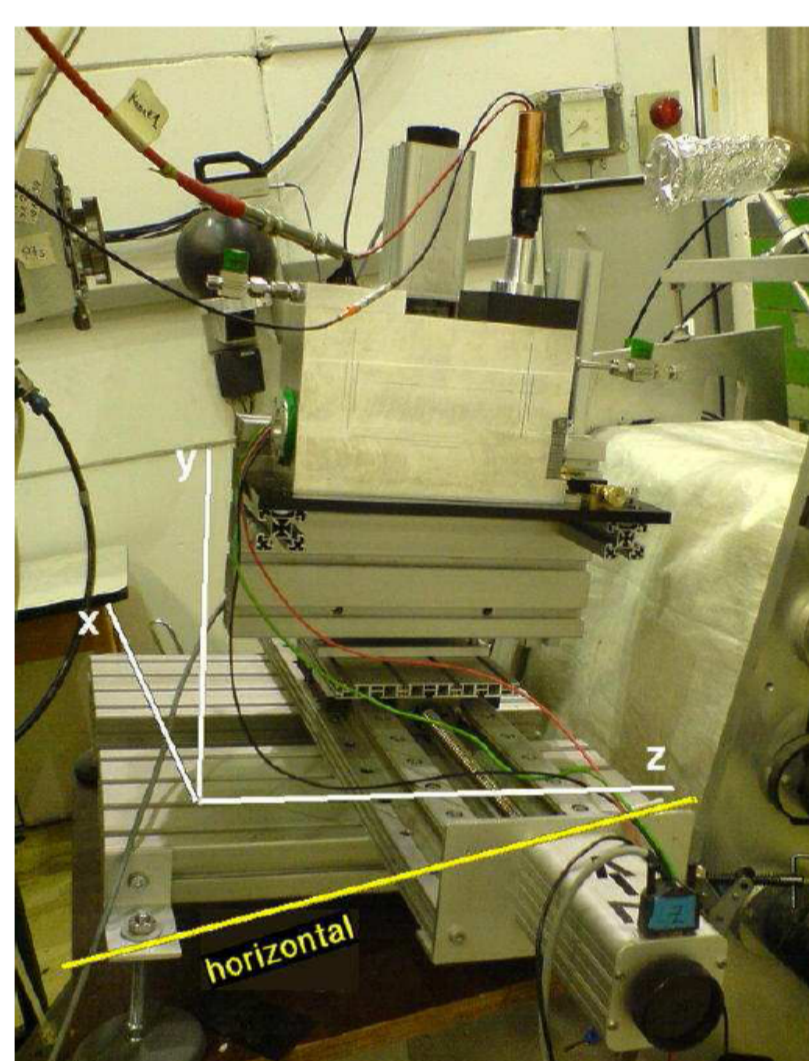
The picture shows the test beam area 22 at DESYII, equipped with the Micro Vertex Detector Strip telescope. This particular beam telescope has been refurbished within the Terascale Alliance. It is designed to measure the beam profile at test beams very accurately, providing information that is needed as a reference to the operation of the components to be tested.

Large TPC Prototype



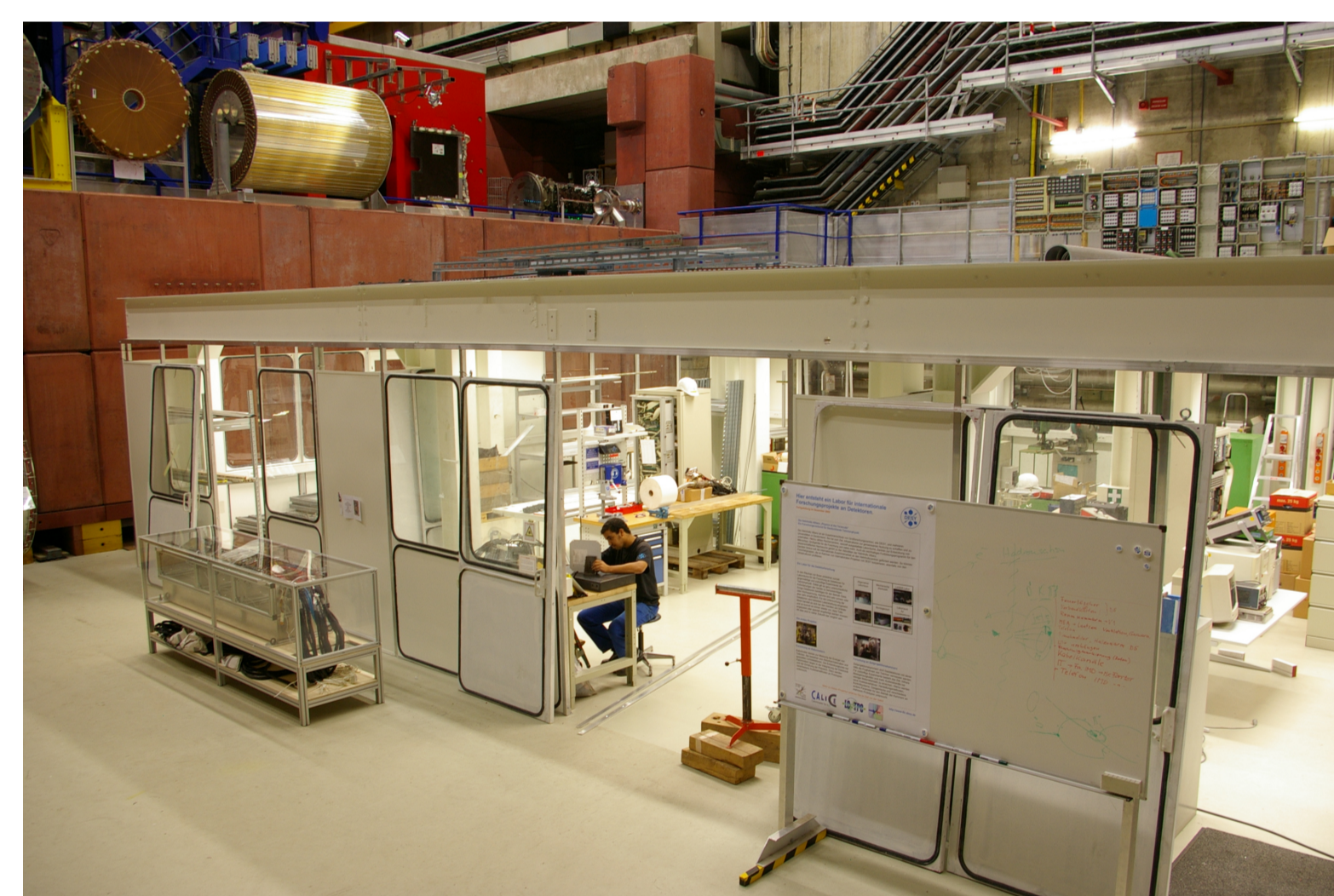
The LCTPC collaboration designed and built the so-called Large Prototype. It is currently located at the DESYII test beam. Six Alliance institutes played and play a key role in the construction and operation of the setup. Examples for the contributions by DESY are the construction of mechanical support structures and the operation of the superconducting magnet.

Polarimetry at Bonn



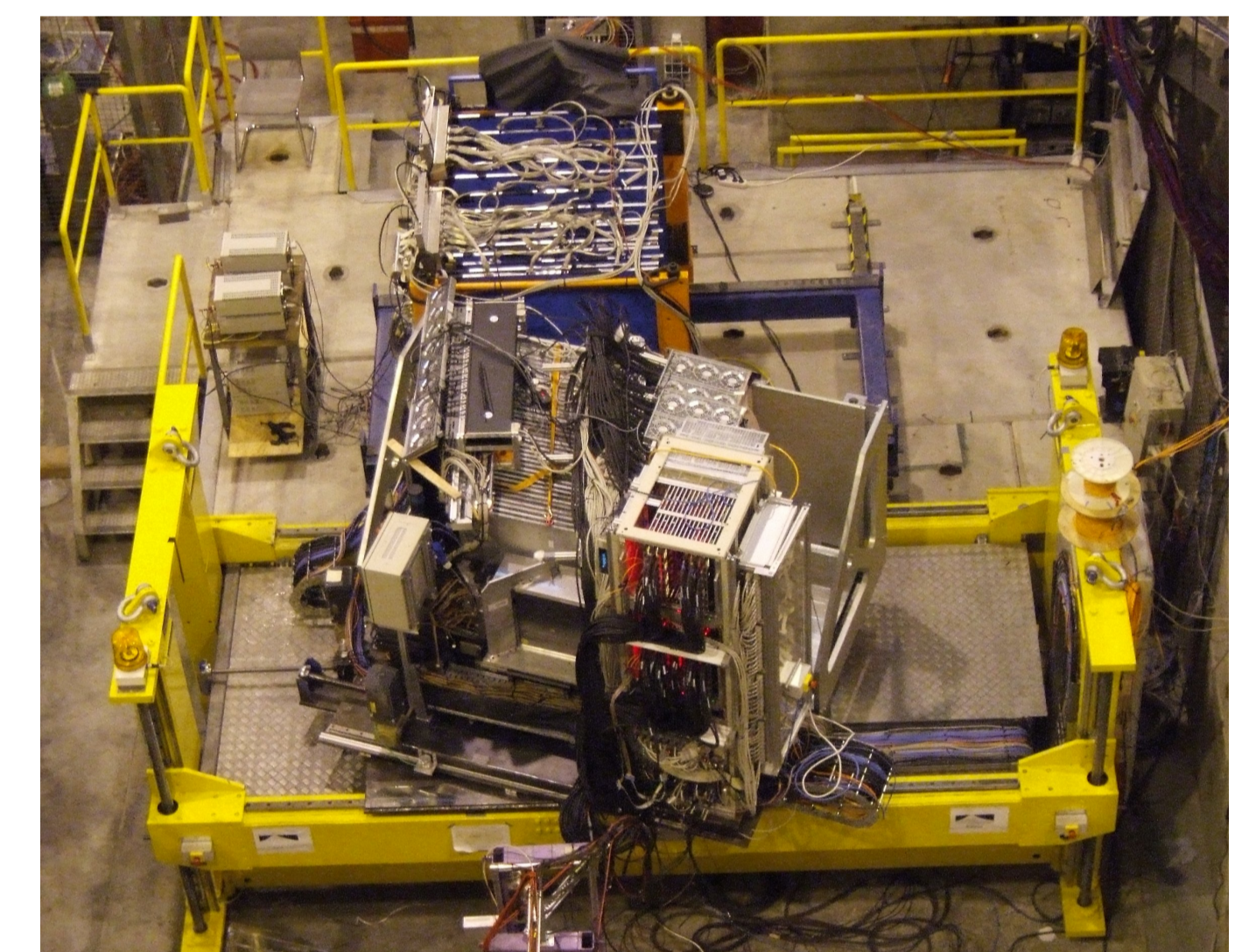
In an Alliance collaboration, the ILC polarimetry group at DESY developed a prototype, which was not only tested at the DESYII test beam, but also at ELSA. The picture shows the movable stage setup installed in the ELSA beam line.

Detector Lab



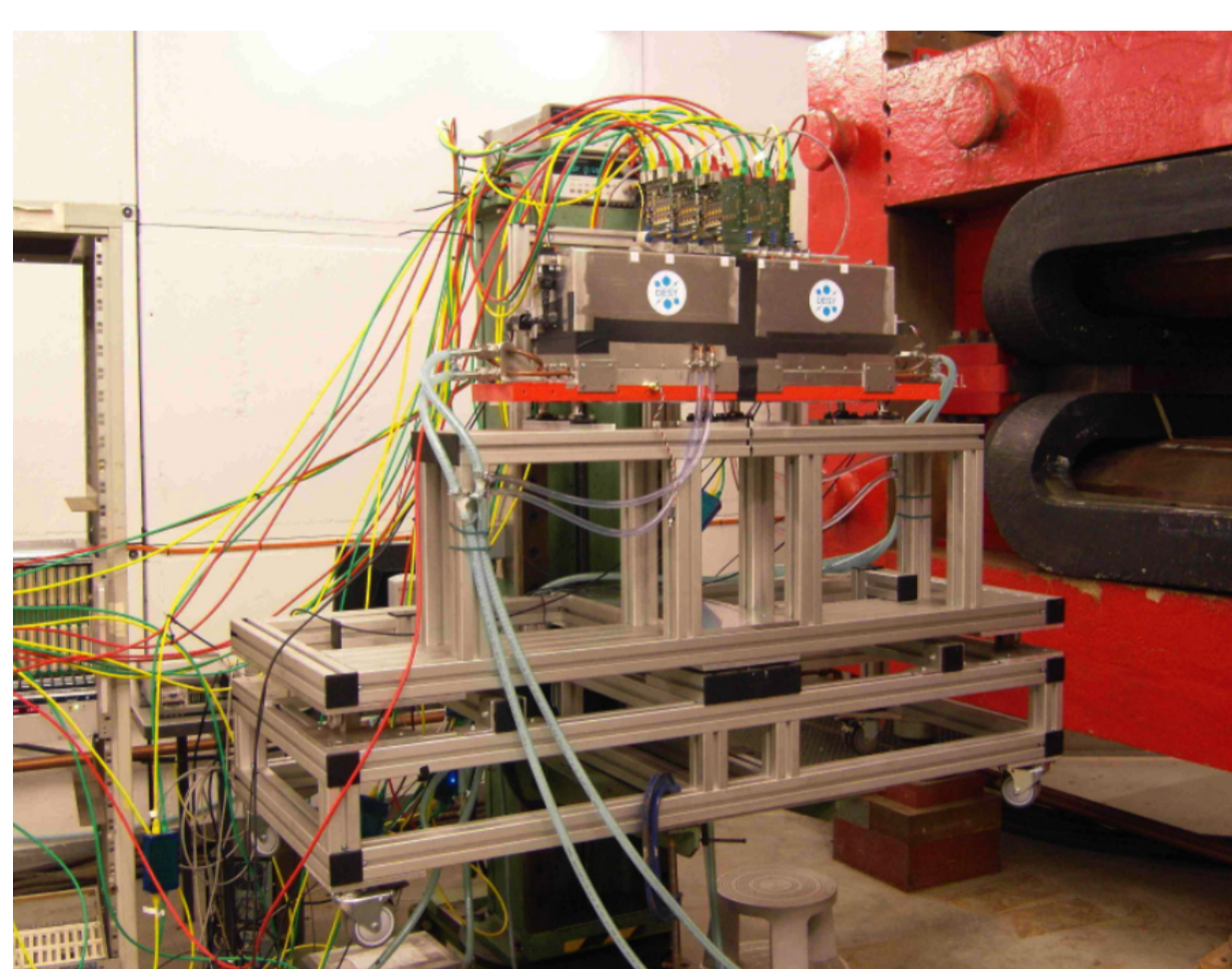
The Alliance VLDT also includes real laboratory facilities like the one currently under construction in the HERA west hall on the DESY campus (shown in the picture). Besides the usage for detector integration, also research infrastructure like the KOMAG is provided for Alliance members and other users.

CALICE Prototype



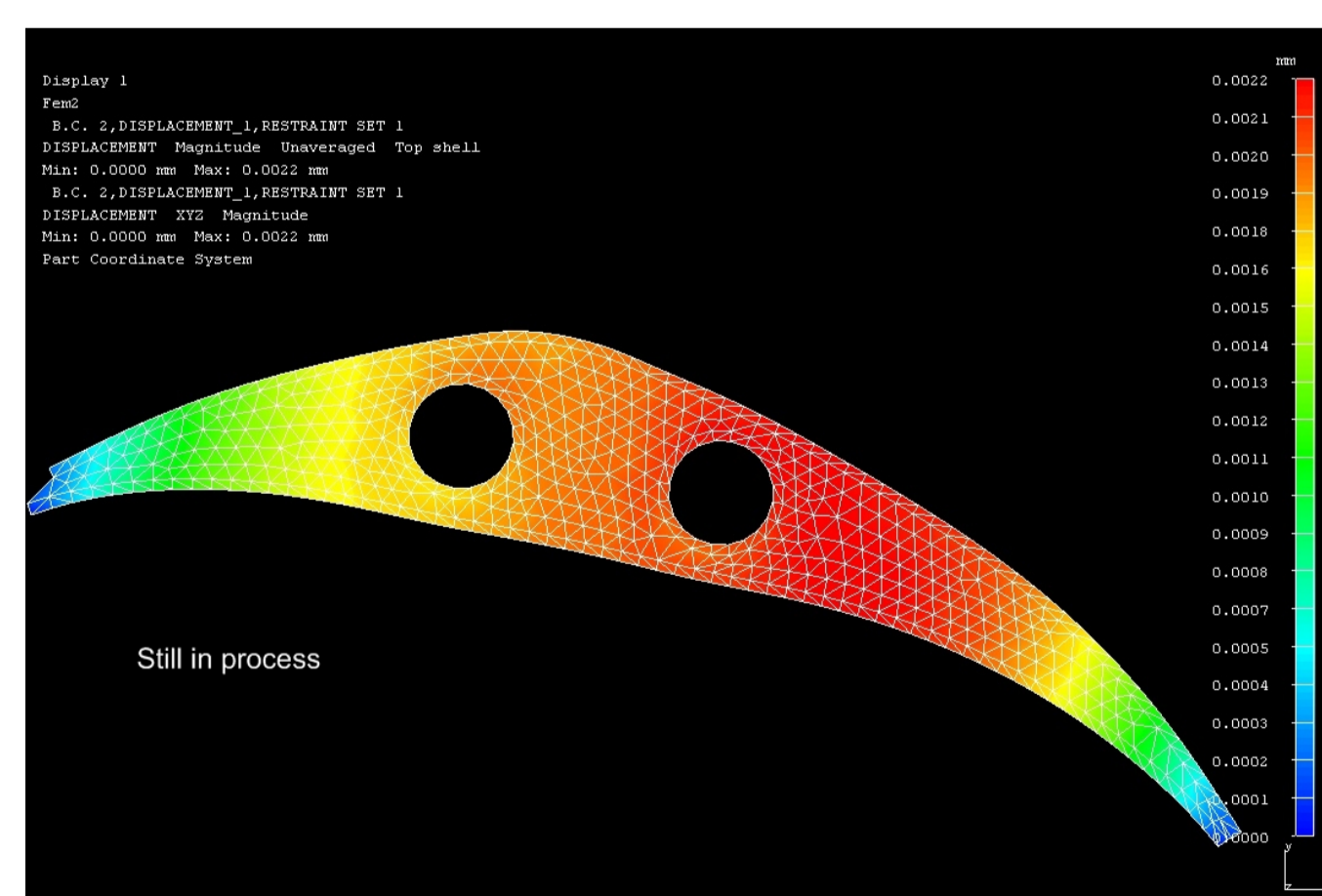
CALICE is an international collaboration that develops and builds a prototype of a calorimeter setup for a detector at the ILC. The set-up has been fully integrated and tested at DESY before being shipped to CERN (see photo) and Fermilab.

EUDET Pixel Telescope



The EUDET Pixel Telescope is another variant of a beam telescope, similar to the MVD strip telescope. It has already been in use at several test beam efforts by Alliance members, also outside Germany.

ATLAS Pixel Simulation



Another example for engineering support within the Alliance are detailed Finite Element simulations for the mechanical stability of the ATLAS pixel detector, carried out at DESY in collaboration with the University of Wuppertal. The picture shows the distortion of a support structure under thermal stress.

KOMAG



The KOMAG is a magnet, which can provide magnetic fields up to 5T with a bore diameter of about 30 cm. In this regard it is an almost unique research infrastructure. Currently it is being dismantled and will be set up as a part of the Alliance detector lab.