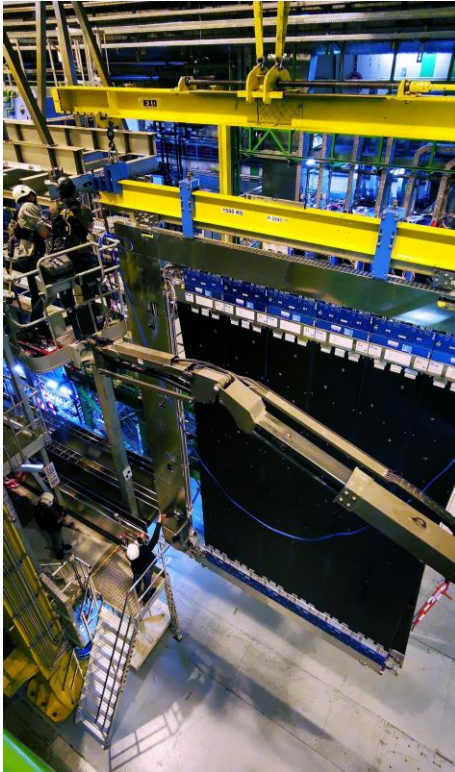


# Installing the Scintillating Fibre Tracker for the LHCb Upgrade



*A single frame being moved to its position in the LHCb detector underground. Photo by Rolf Lindner.*

The Physikalisches Institut at Heidelberg Universität has played a significant role in the research and development of the detector system, engineering of the mechanical structure, along with the development of the readout ASIC chip, with leading roles in the assembly and commissioning of the tracker at CERN over the last years.

The first frames of the Scintillating Fibre Tracker are shown here being transported at Point 8 of the LHC ring. In total, 12 frames are being constructed for charge particle tracking in the LHCb Upgrade detector and are slated for completion before the LHC beams return in the Spring of 2022.

Particles passing through the scintillating fibre will cause the fibre to fluoresce, producing a small flash of light lasting a few nanoseconds. Silicon photomultipliers at the end of the fibres detect the optical signals and create an electronic pulse proportional in amplitude to the number of photons seen. The signal is digitised and the location of the light pulse is recorded. Multiple planes of fibre allow for the path of the particle to be reconstructed, before and after a magnetic field, thus allowing for the momentum of the particle to be determined.



*The first four frames are loaded in a transport cage in the assembly hall at Point 8, May 3, 2021. Photo by Sune Jakobsen..*