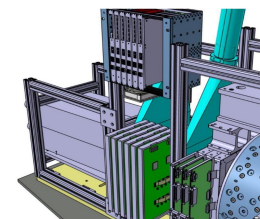
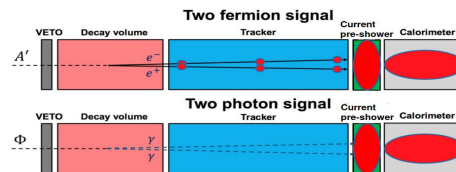
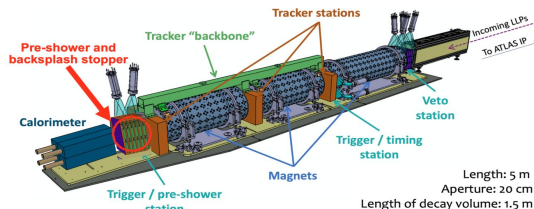




FASER is a new experiment that will operate at Run 3 at the Large Hadron Collider and it is located 480 m away from ATLAS. It is designed to search for Long Lived Particles (LLPs), that will decay at zero angle inside the detector. The new preshower detector of the FASER experiment will enable the detection of long lived particles that decay in two photons. As a result the signal that the new preshower targets to measure, is produced by two photons with energies up to TeV scale and separation 200 μm . For this reason a high granularity preshower detector is needed. This new preshower detector that will do all this, will consists from 6 layers of monolithic silicon pixel detectors attached to six tungsten layers and it will operate during 2024.



For this new preshower a monolithic ASIC in 130 nm SiGe BiCMOS technology is being developed, in collaboration between CERN, University of Geneva and KIT. The monolithic ASIC will measure the charge by means of analog memories integrated in pixel. Analog multiplexers and flash ADCs are used to read out the entire matrix in few tens of μs , while the fast amplifiers based on SiGe HBTs will provide the time of arrival of the shower core with 200 ps time resolution. The pre-production run of the ASIC with three alternative layouts of the readout scheme is presently under test.

