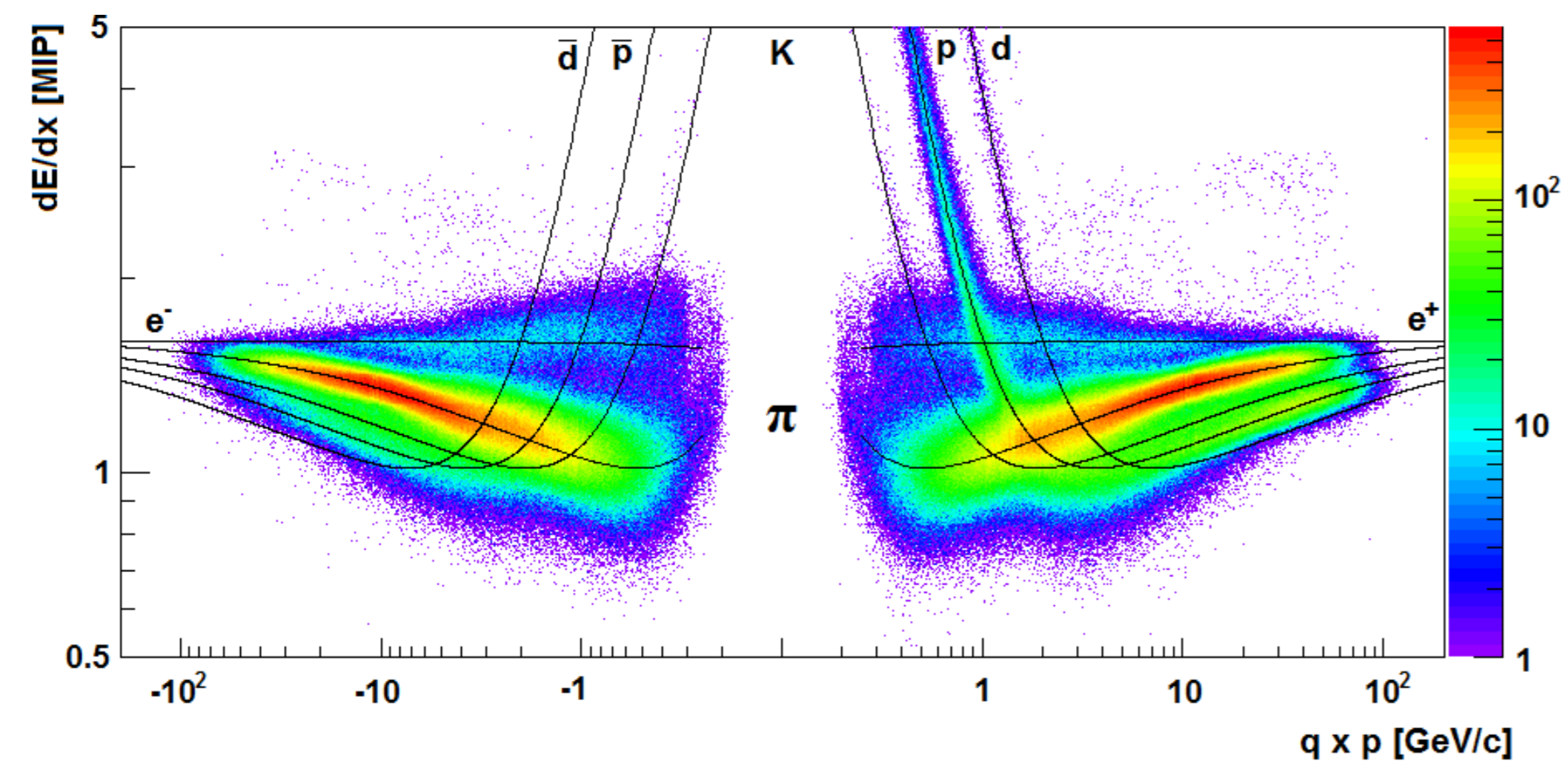
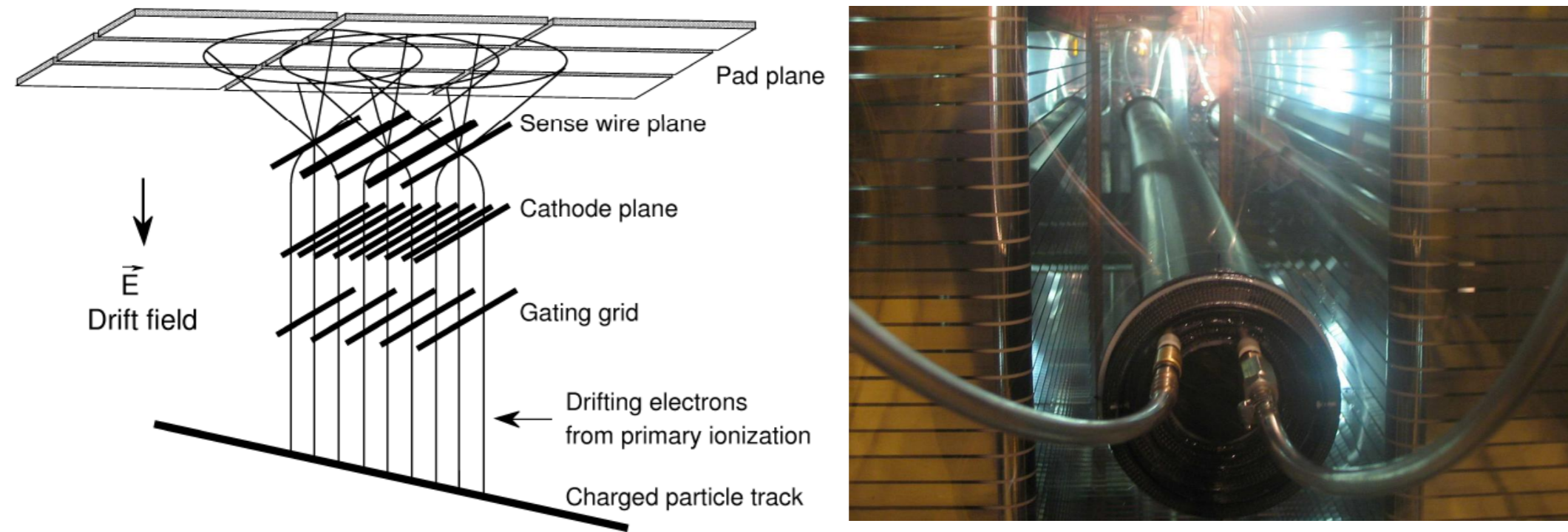
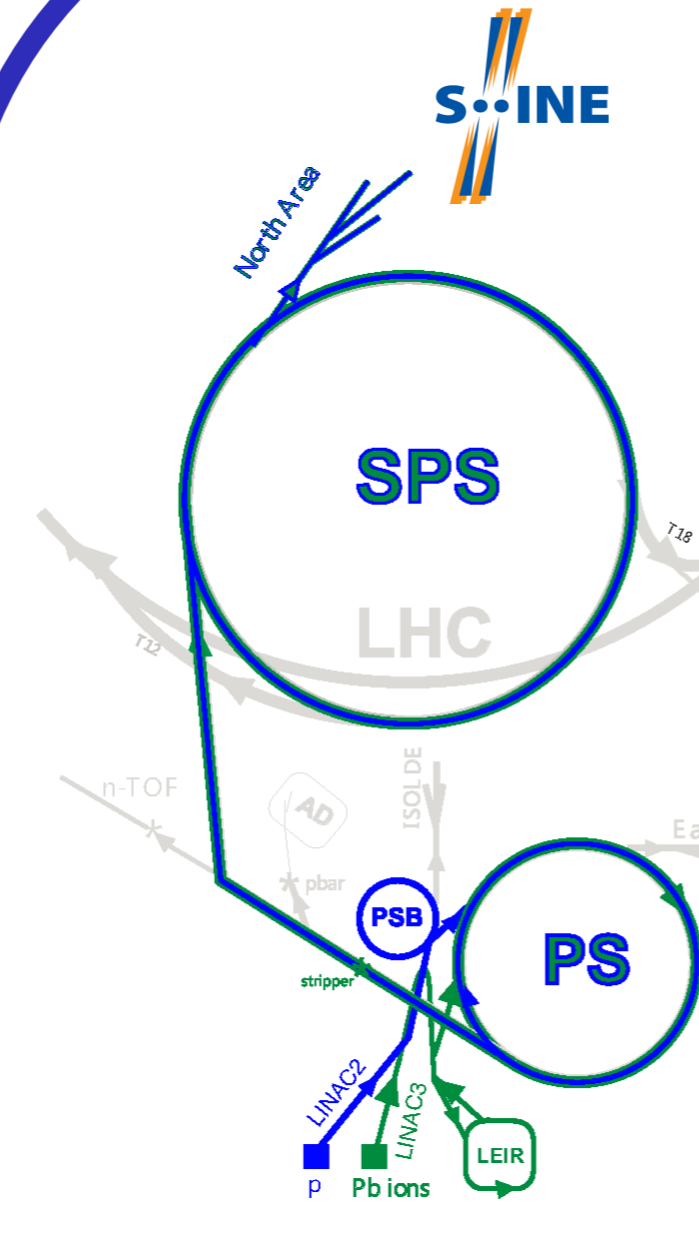


### Time Projection Chambers

NA61/SHINE uses five Time Projection Chambers: VTPC-1, VTPC-2, MTPC-L, MTPC-R and GTPC. Two medium size ones (3.3 m<sup>2</sup>) are located inside vertex magnets, two large ones (17 m<sup>2</sup>) are downstream of the magnets and a small one (0.4 m<sup>2</sup>) is located between VTPCs. The TPCs detect up to 1200 charged particles. Their readout consists of 182 000 channels. They provide precise measurements of electric charge, momentum and mass of the produced particles.

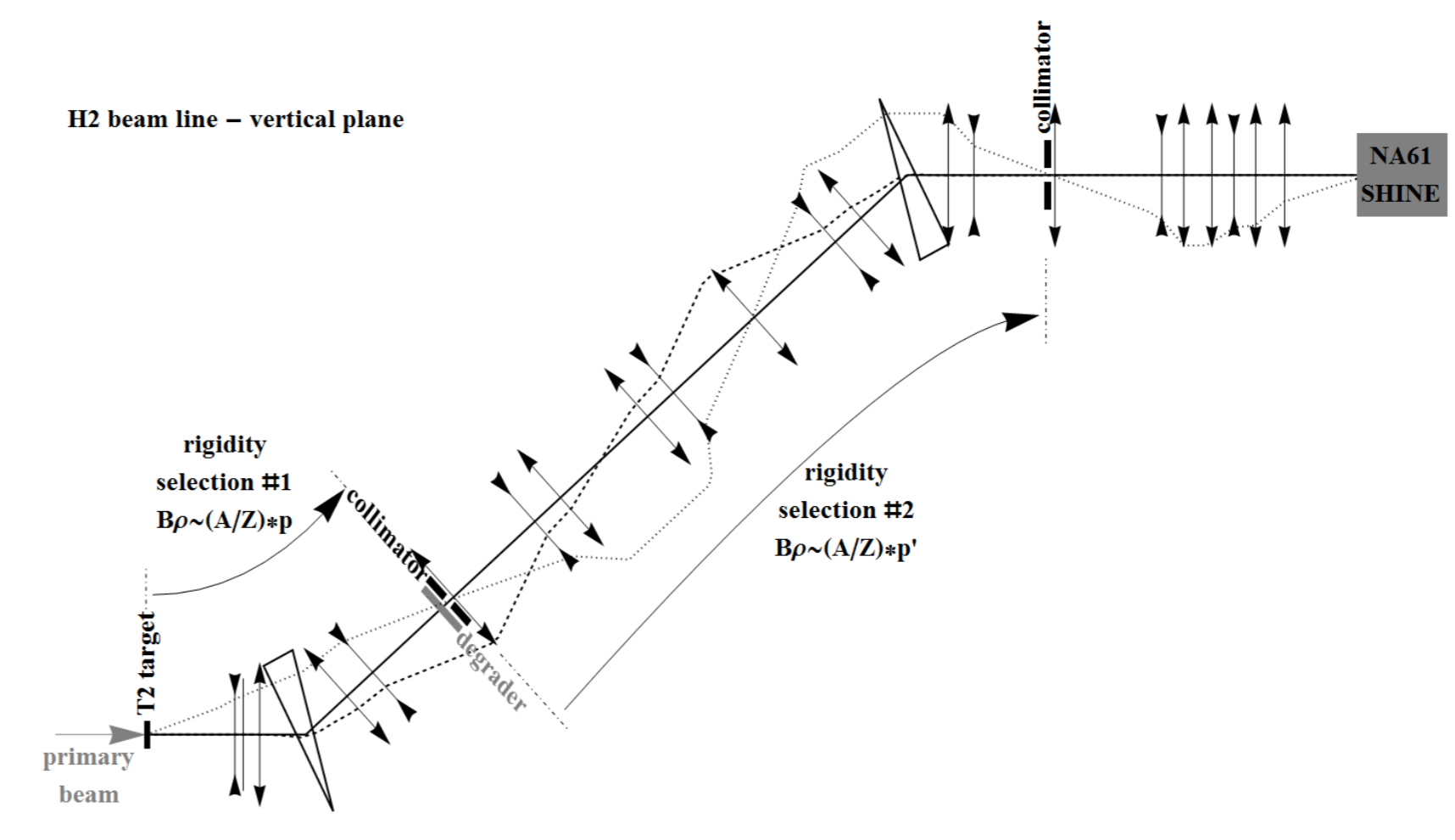


### Beams



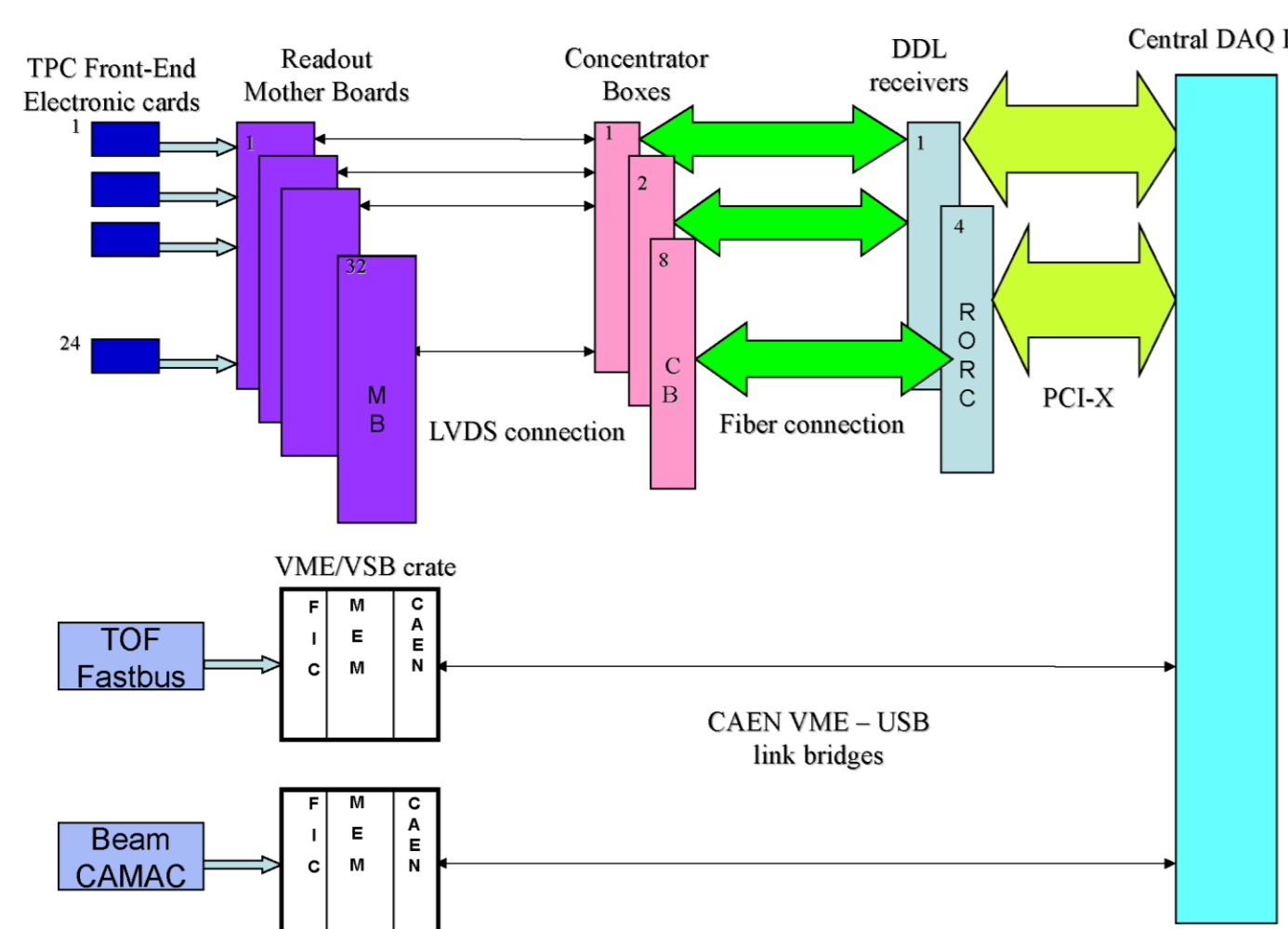
NA61/SHINE uses primary and secondary ion beams, as well as secondary hadron beams provided by the CERN accelerator complex.

From the source, the beams of ions and protons pass through a series of accelerators, before they reach the SPS for the final acceleration and subsequent extraction to the North Area and NA61/SHINE. The protons and ions follow a different path in the preinjector chain to the PS, required to match the beam parameters for their acceleration.

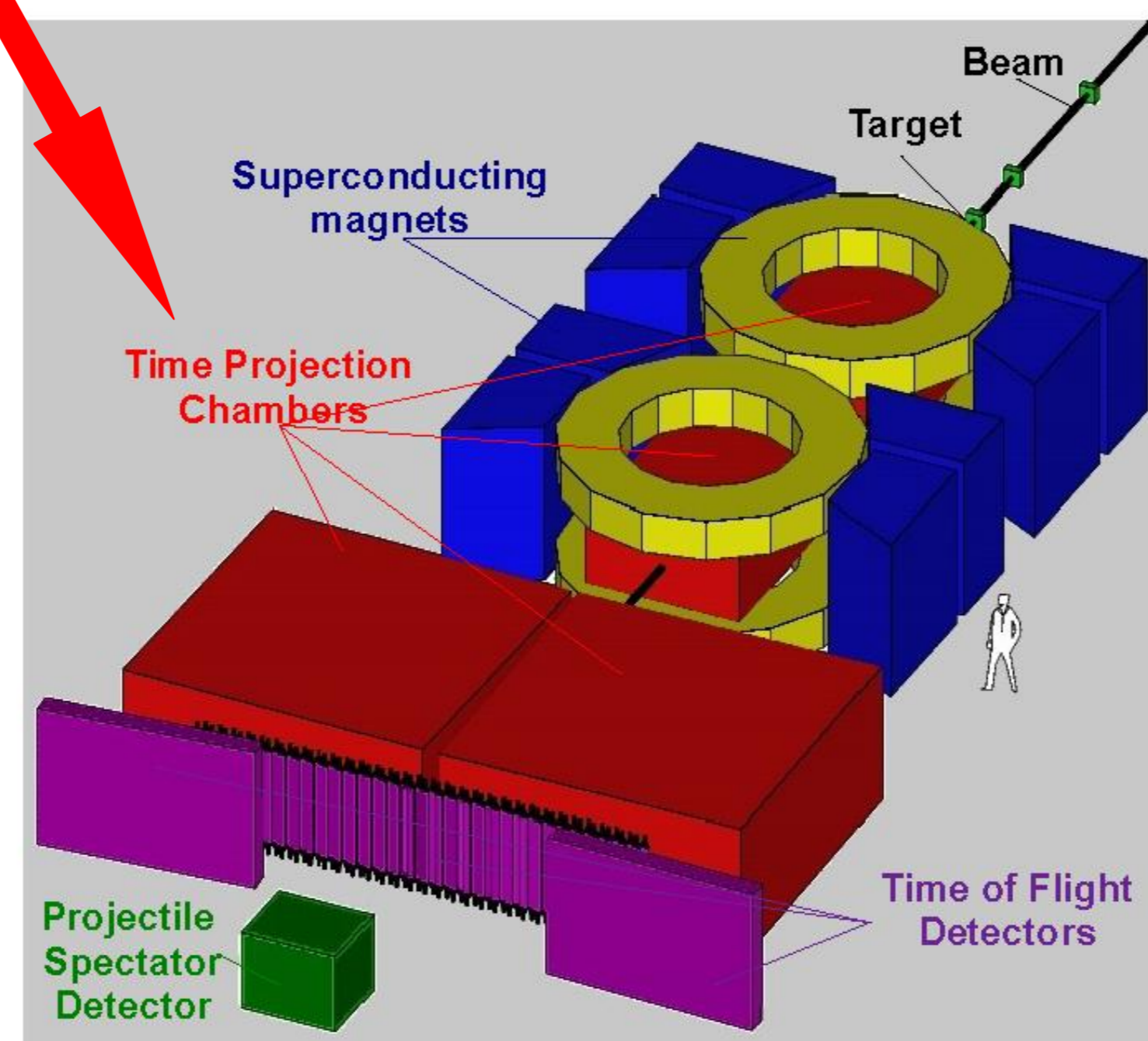


The extracted beam from the SPS is transported over about 1 km by bending and focusing magnets towards the T2 primary target. Then the beam is transported to the Experimental Hall North 1 and NA61/SHINE.

### Data Acquisition



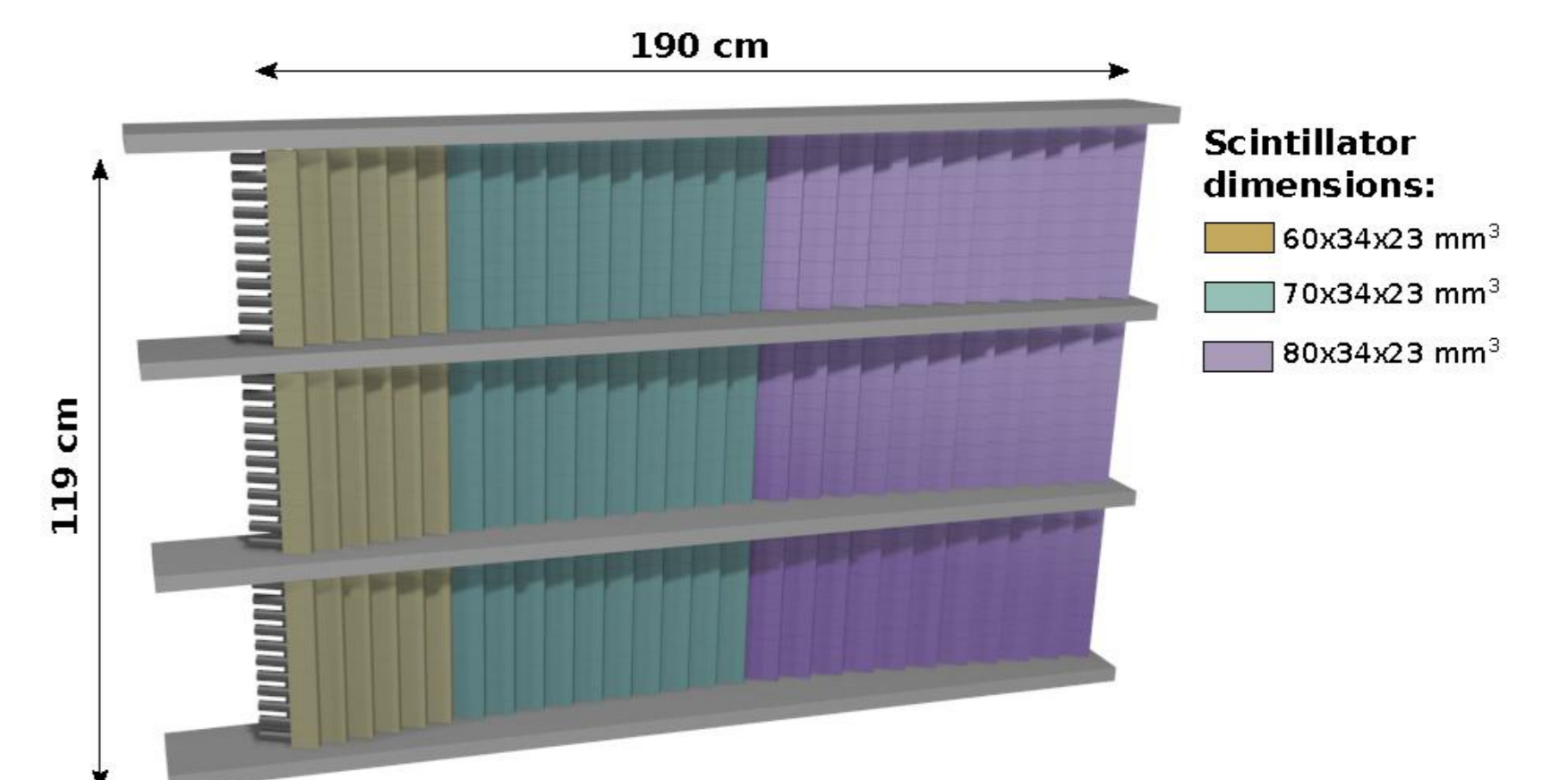
Central Data Acquisition sends the data to the central storage on CASTOR. Its maximum data rate is 650 MB/s.



### Time of Flight Detectors

Time of Flight Left/Right detector consists of two arrays of 891 scintillators and covering an area of 2 x 1.2m<sup>2</sup> each. Time resolution is ~70 ps. It allows for a mass measurement in a momentum range not accessible for the TPCs.

The scintillator array

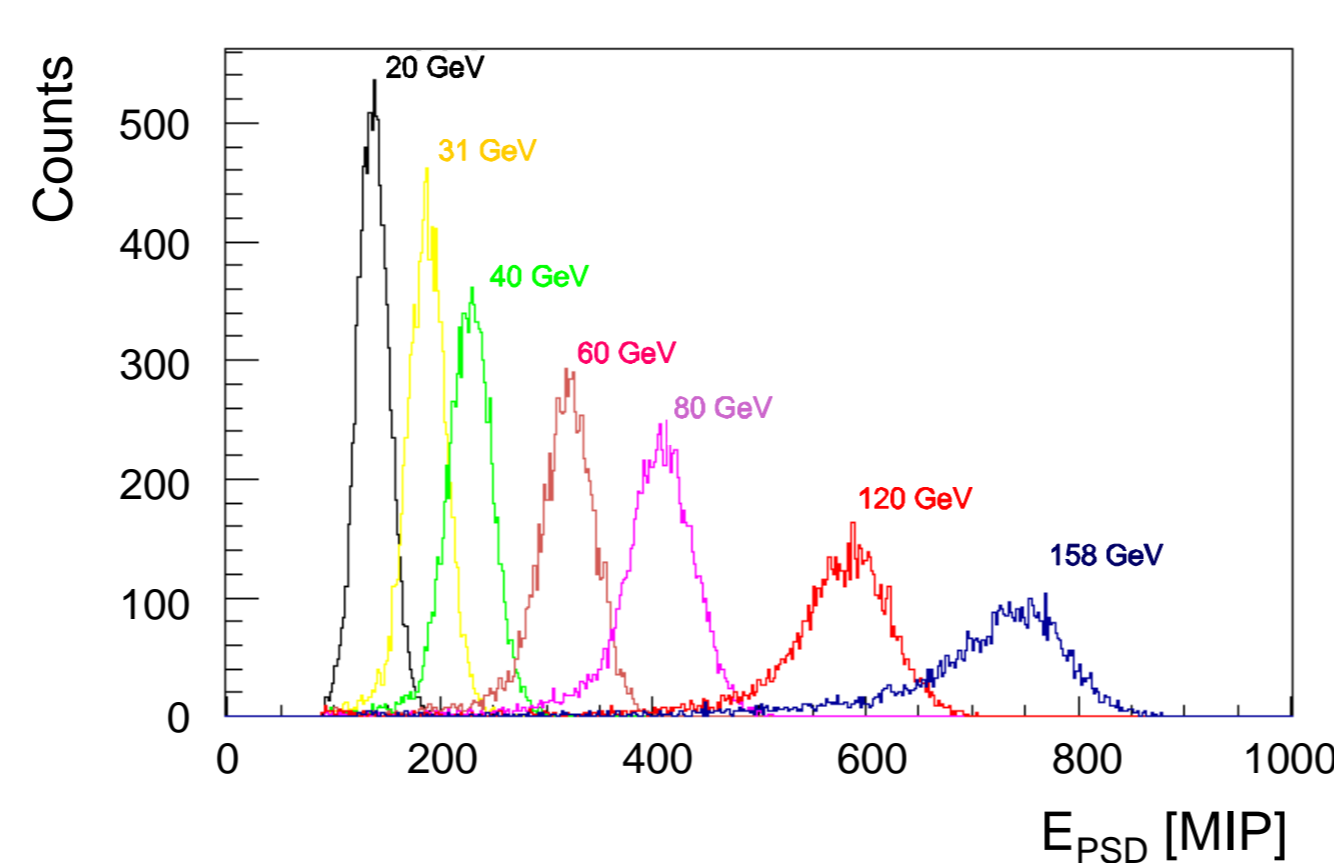


### Projectile Spectator Detector

Projectile Spectator Detector measures the energy of projectile spectators. It allows to determine the number of projectile nucleons which participated in a collision with a precision of about one nucleon.



PSD response to protons at different energy



### Central Ar+Sc collision at 150A GeV/c registered by the NA61/SHINE detector

