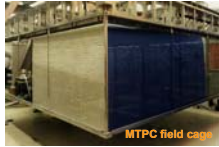
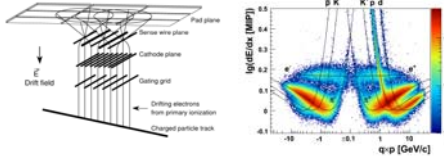
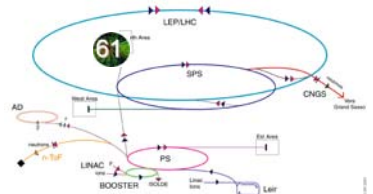


TPC detectors

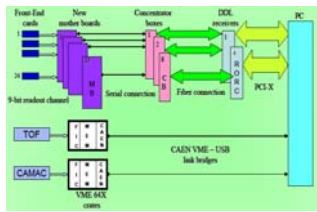
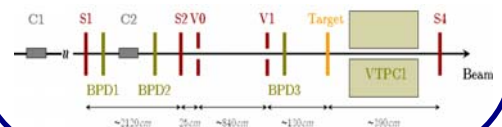
NA61 uses five Time Projection Chambers: VTPC-1, VTPC-2, MTPC-L, MTPC-R and GTPC. Two medium size ones (3.3 m²) are located inside vertex magnets, two large ones (17 m²) are downstream of the magnets and a small one (0.4 m²) is located between VTPCs. The TPCs detect up to 1200 charged particles. Their readout consists of 182 000 channels. They provide precise measurements of electric charge, momentum and mass of the produced particles.



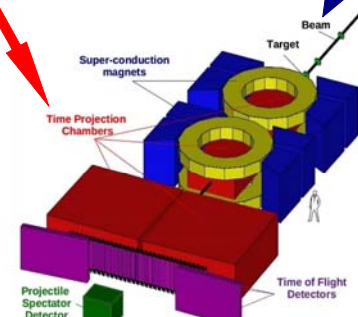
Beam and beam detectors



NA61 uses primary and secondary ion beams, as well as secondary hadron beams. Beam of hadrons are identified by two Čerenkov counters, C1 and C2. Their trajectory is measured by three proportional chambers, the Beam Position Detectors (BPD). Trigger counters are scintillators S and V. Accepted beam particles should hit the S1 and S2-detectors and pass through the hole of the V-detectors. Interactions in the target are selected by a requirement of a signal absence in the S4-detector. The S1-detector provides a time reference for the ToF detectors.

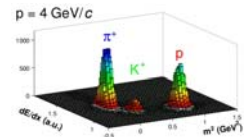
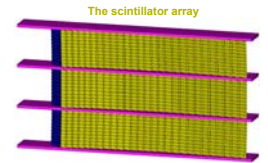


Central Data Acquisition sends the data to the central storage on CASTOR. Its maximum data rate is 650 MB/s.



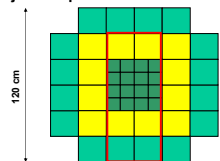
Time of Flight Detectors

Time of Flight Left/Right detector consists of two arrays of 891 scintillators and covering an area of 2 x 1.2m² each. Time resolution is ~70 ps. It allows for a mass measurement in a momentum range not accessible for the TPCs.



Projectile Spectator Detector - PSD

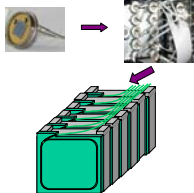
The PSD measures the energy of projectile spectators. It allows to determine the number of projectile nucleons which participated in a collision with a precision of about one nucleon.



Structure of the PSD:
16 central modules - 10x10x125 cm³
28 outer modules - 20x20x125 cm³
Total weight - 17 tons

Structure of the module:

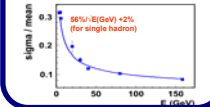
60 scintillator/lead layers with WLS and 10 MAPD-3A (Zecotek) light and signal readout.



Analog and digital PSD electronics



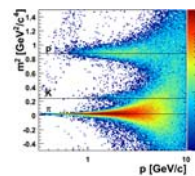
PSD supermodule energy resolution



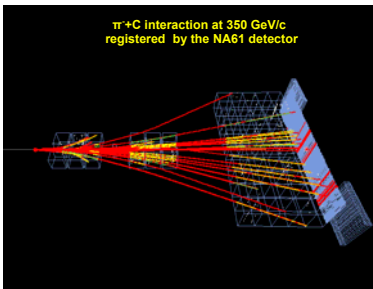
PSD central part beam test, Nov 2010

Forward Time of Flight detector

Forward Time of Flight detector consists of 64 scintillator bars read-out on both sides. It has total area of 5.77x1.2 m² and a time resolution of ~120ps.



π+C interaction at 350 GeV/c registered by the NA61 detector



NA61: 130 physicists from 24 institutes and 13 countries:

- University of Athens, Athens, Greece
- University of Bergen, Bergen, Norway
- University of Bern, Bern, Switzerland
- KFKI IPNP, Budapest, Hungary
- Jagiellonian University, Cracow, Poland
- Joint Institute for Nuclear Research, Dubna, Russia
- Pechhochschule Frankfurt, Frankfurt, Germany
- University of Frankfurt, Frankfurt, Germany
- University of Geneva, Geneva, Switzerland
- Forschungszentrum Karlsruhe, Karlsruhe, Germany
- Institute of Physics, University of Silesia, Katowice, Poland
- Jan Kochanowski University, Kielce, Poland
- Institute for Nuclear Research, Moscow, Russia
- LPNHE, Université de Paris VI et VII, Paris, France
- Faculty of Physics, University of Sofia, Sofia, Bulgaria
- St. Petersburg State University, St. Petersburg, Russia
- State University of New York, Stony Brook, USA
- KEK, Tsukuba, Japan
- Soltan Institute for Nuclear Studies, Warsaw, Poland
- Warsaw University of Technology, Warsaw, Poland
- University of Warsaw, Warsaw, Poland
- Universidad Tecnica Federico Santa Maria, Valparaiso, Chile
- Rudjer Boskovic Institute, Zagreb, Croatia
- ETH Zurich, Zurich, Switzerland