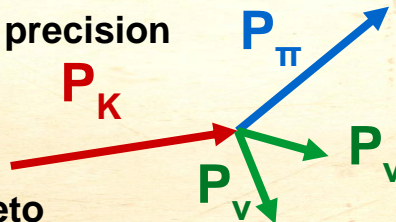


The CHANTI for the NA62 experiment at CERN

Marco Mirra on behalf of CHANTI working group of INFN - Naples

NA62 Goal : measure $BR(K^+ \rightarrow \pi^+ \nu \bar{\nu})$ with O(10%) precision

- collect ~ 100 SM ($BR(K^+ \rightarrow \pi^+ \nu \bar{\nu}) \sim 10^{-10}$) events
- high intensity kaon beam
- large background rejection + redundancy
- momentum measurement of K^+ and π^+ + PID + veto

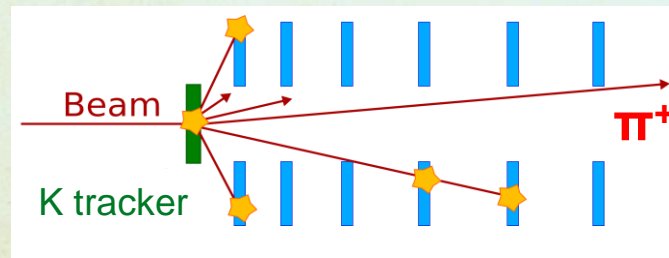


Presenter:
Marco
Mirra



The purpose of the CHANTI is to identify inelastic interactions occurring in the kaon tracker

In such cases pions, or other particles produced in the interaction, if emitted at low angle, can reach the straw tracker and mimic a K decay in the fiducial region. If no other track is detected, these events can appear like a signal event, one single π^+ in the final state.



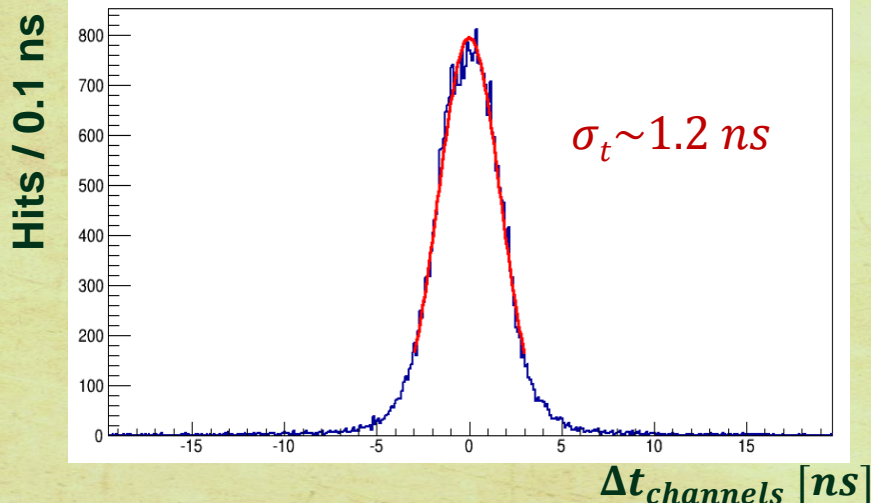
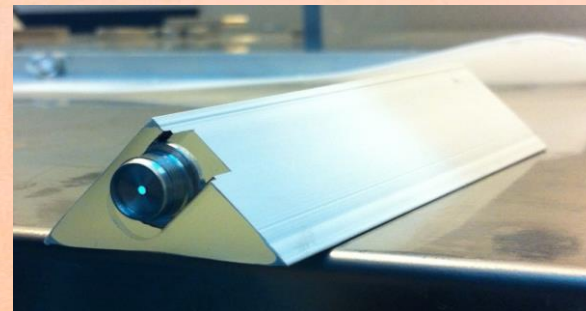
CHANTI structure

- 6 stations made by triangular scintillator bars (both X and Y view)
- Readout: WLS and SiPM (288 channels)
- Dedicated FEE board has been designed in order to set the bias voltage of the SiPM and to read their current.



The CHANTI for the NA62 experiment at CERN

- Polystyrene scintillator with TiO_2 coating produced at FNAL-NICADD. Good light yield (100% of Kuraray SCSN-81) and fast response ($\sim\text{ns}$).
- Bicron BCF92 WLS fiber placed inside each bar. The fiber is read only at one side, on the other side it is mirrored.
- Hamamatsu SiPM ($1.3 \times 1.3 \text{ mm}^2$; $50 \mu\text{m}$ pixel) with HV of the order of 70 V and leakage current of the order of few nA.



The CHANTI took part to the Pilot Run in October 2014 together with the other detectors of NA62. The time and spatial resolution have been measured by means of muon halo tracks.