

**Starting
OPERA data taking
with the CNGS beam**

LNGS, August 21st

CNGS/OPERA starting

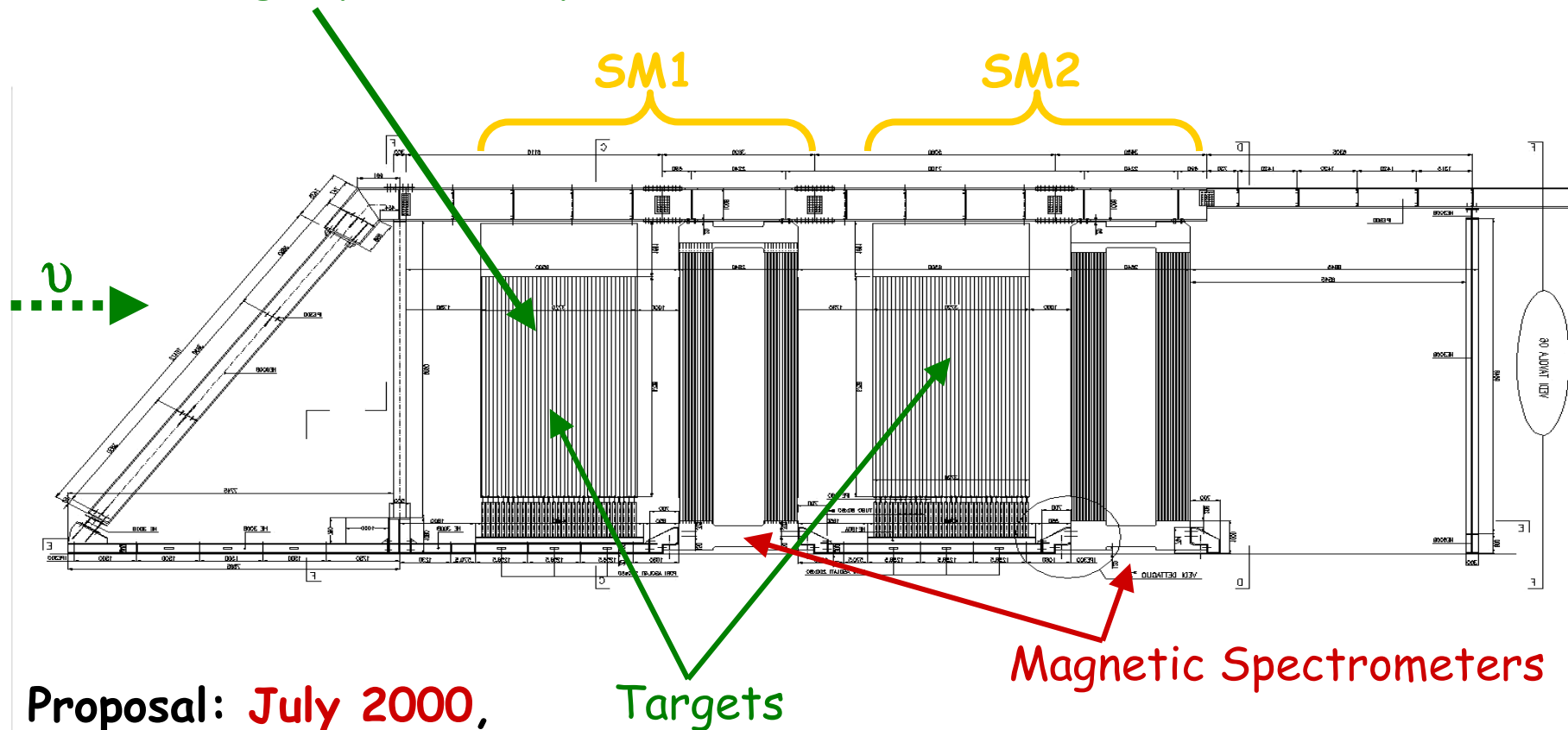
OPERA collaboration

1

Structure of the OPERA Experiment



31 target planes / supermodule (in total: 206336 bricks, 1766 tons)



Proposal: **July 2000**,

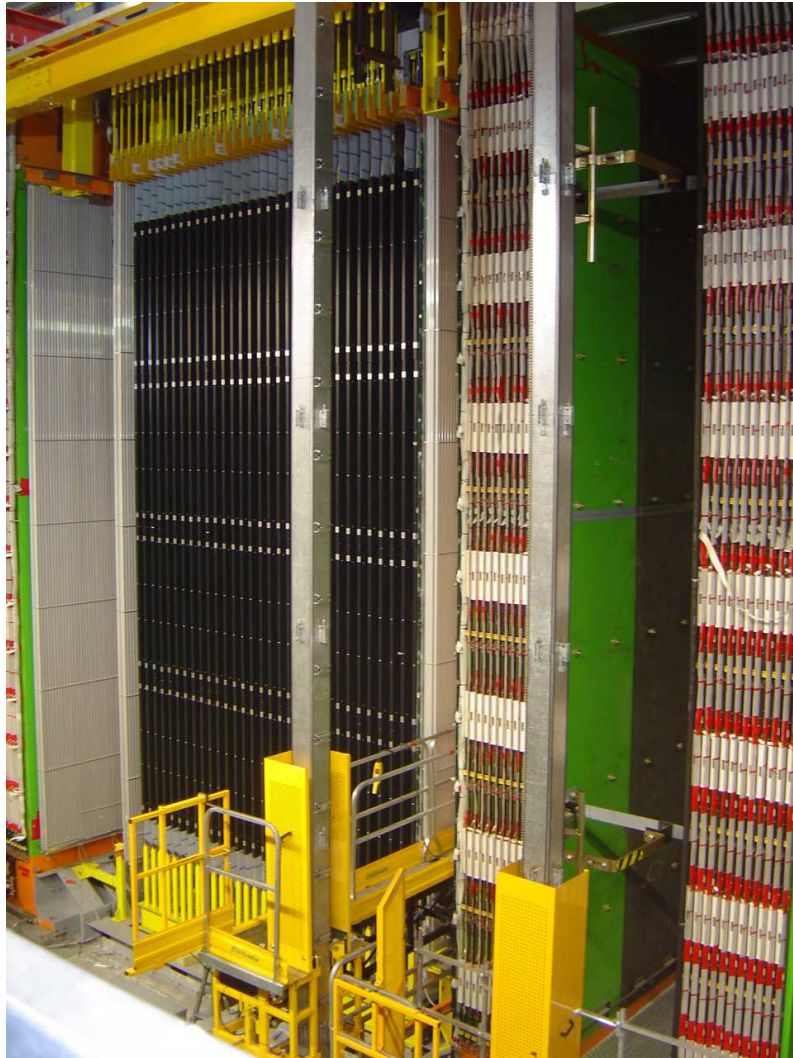
installation at LNGS started in **May 2003**

First observation of CNGS beam neutrinos : **August 18th, 2006**

OPERA in pictures

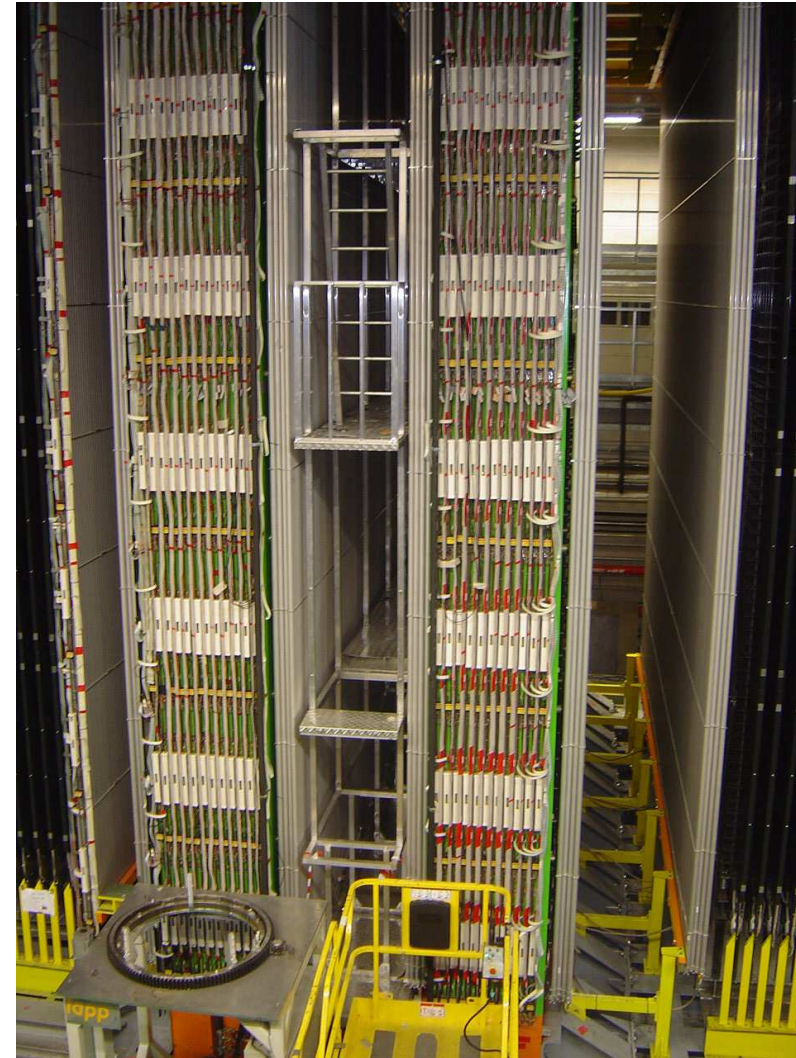


Second Super-module



LNGS, August 21st

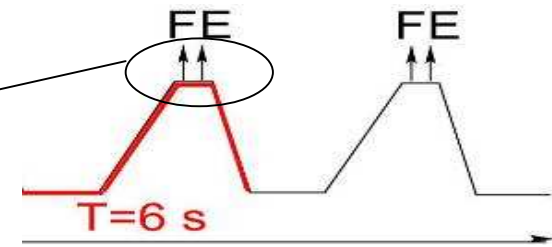
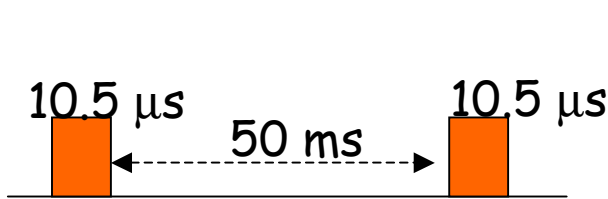
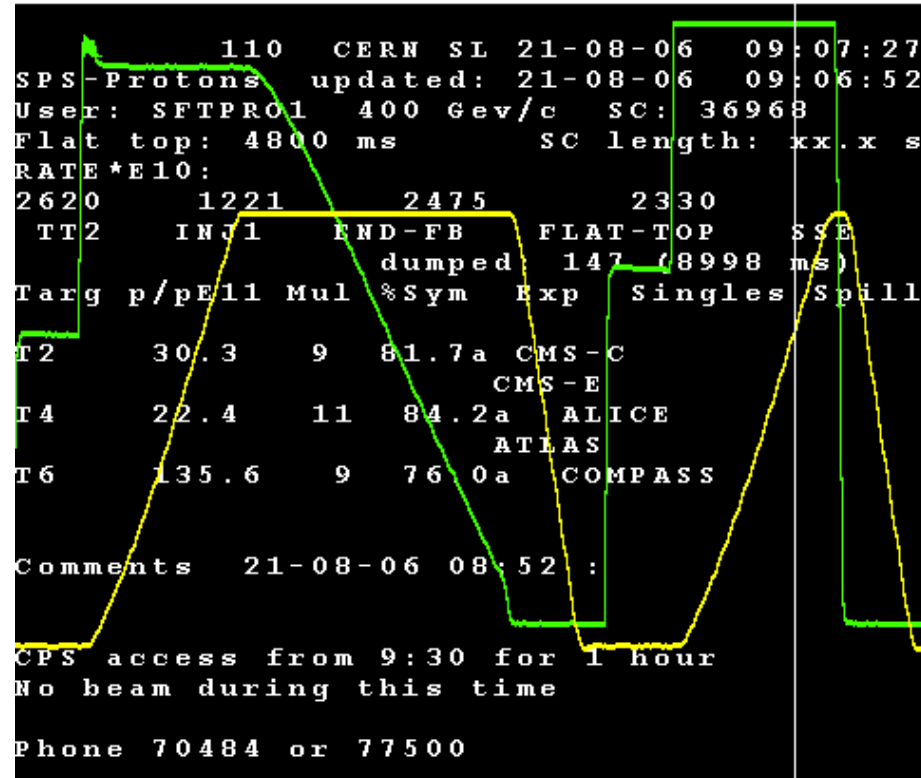
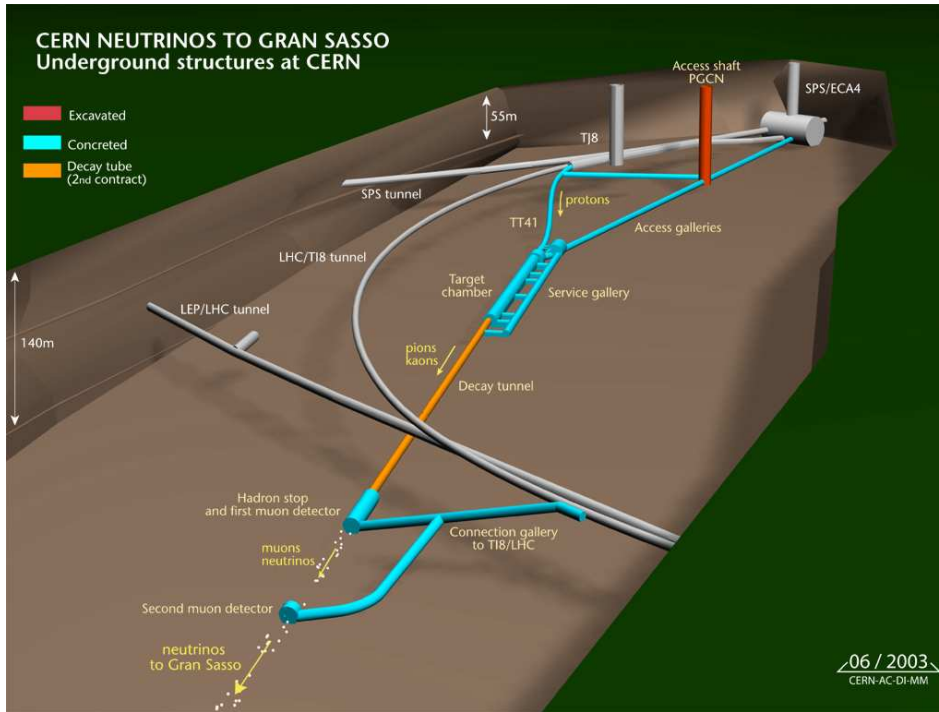
details of the first spectrometer



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CNGS beam performances

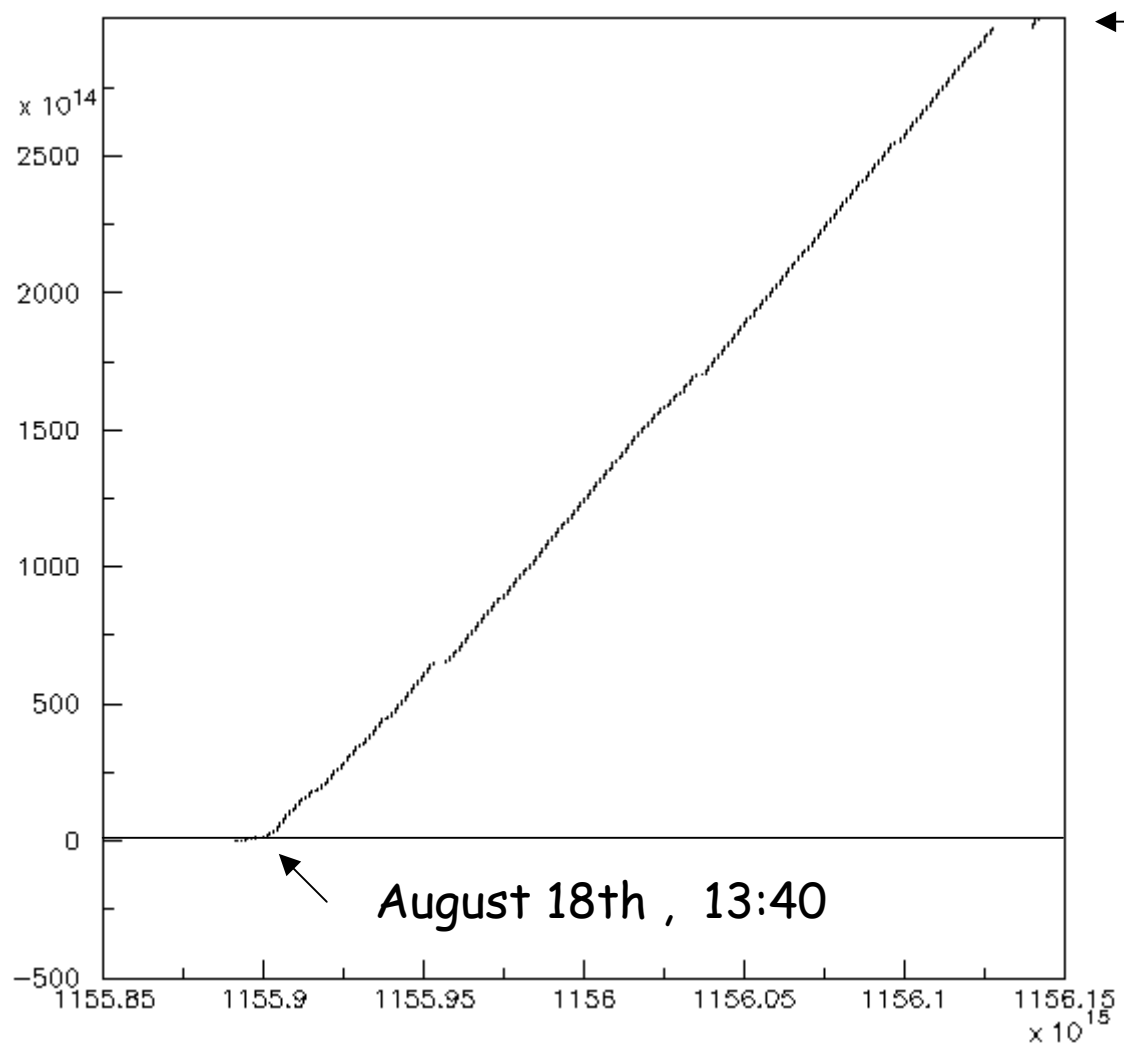


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Integrated proton intensity delivered onto the CNGS target



← 317 pot
August 21th, 8:25

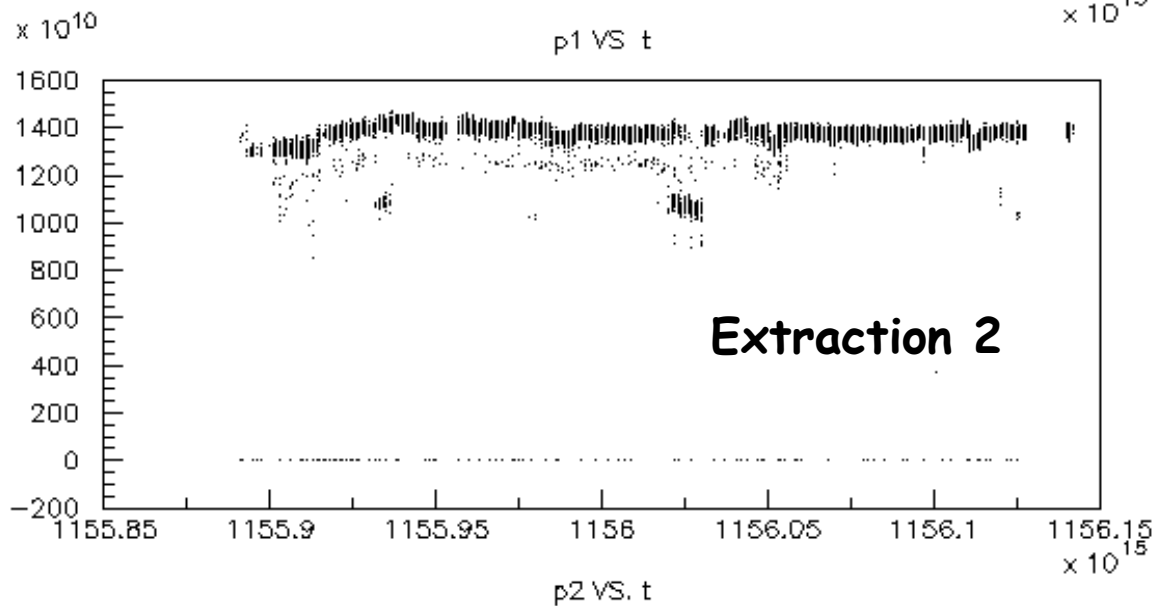
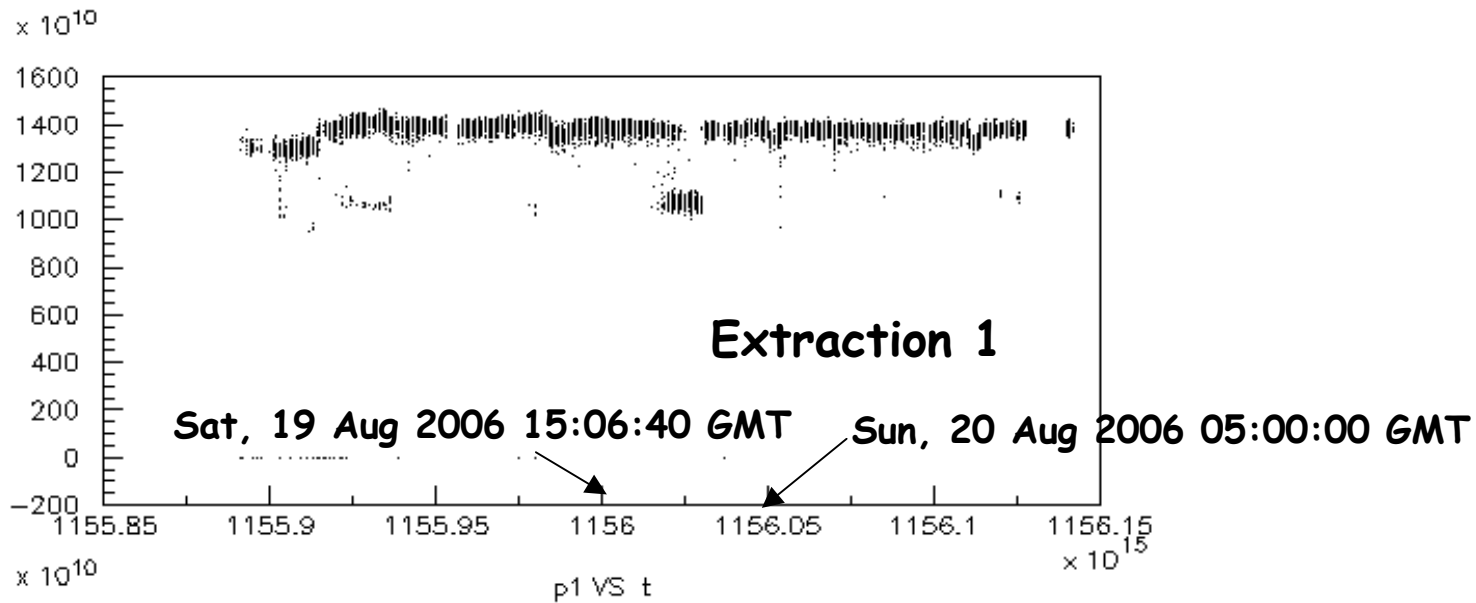
August 18th, 13:40

LNGS, August 21st

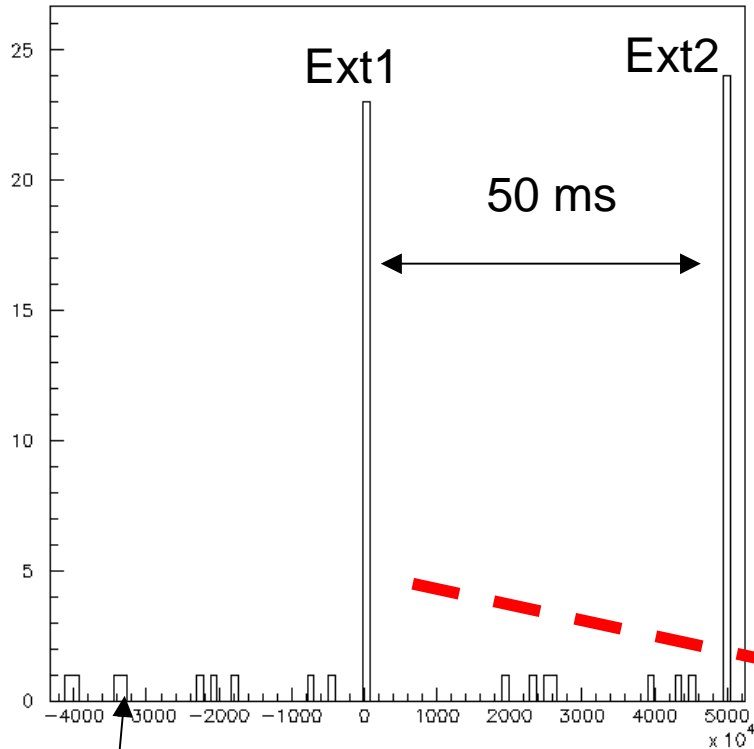
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Pot per extraction as a function of time



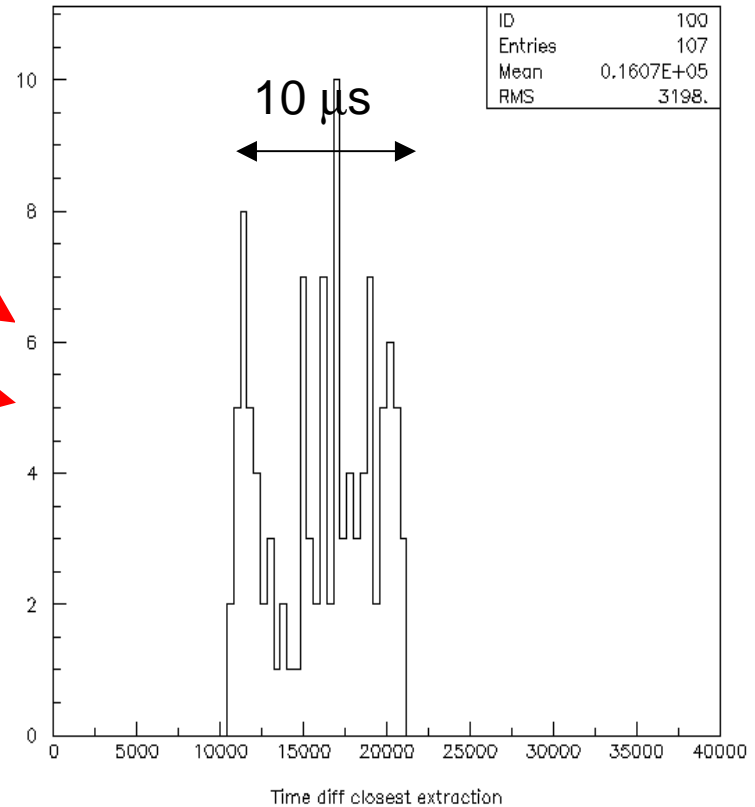
Event selection by using GPS timing informations



Δt first extraction (ns)

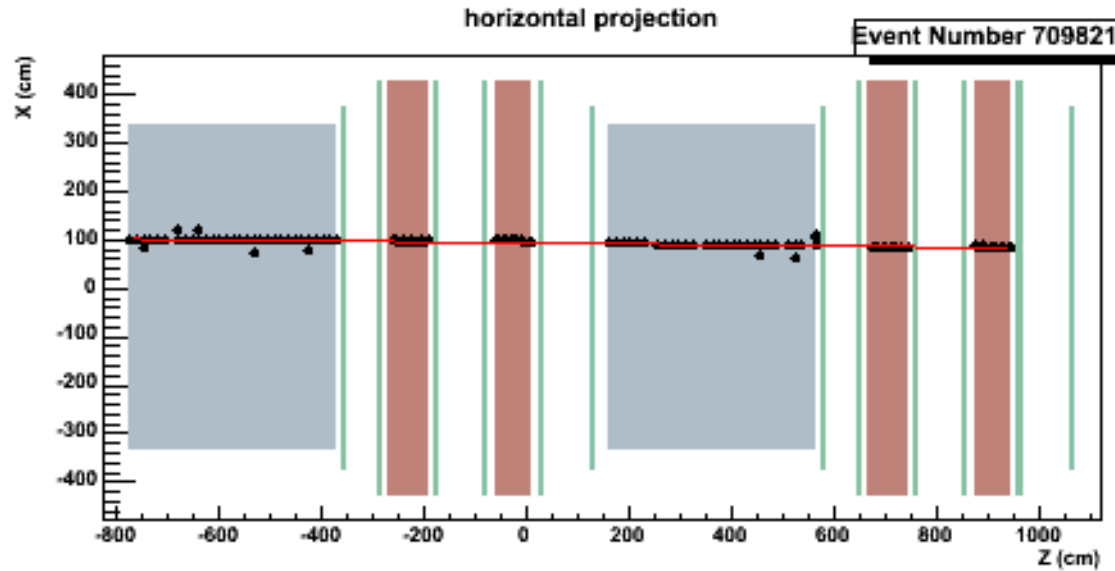
Cosmic rays background events

Zoom on the spill peaks

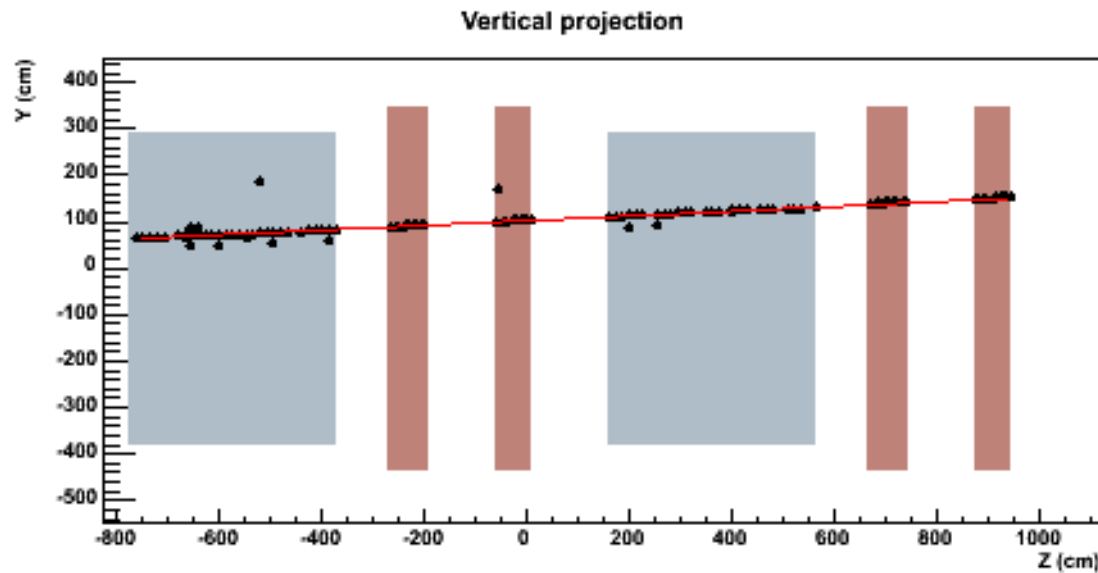


Δt closest extraction (ns)

OPERA collaboration

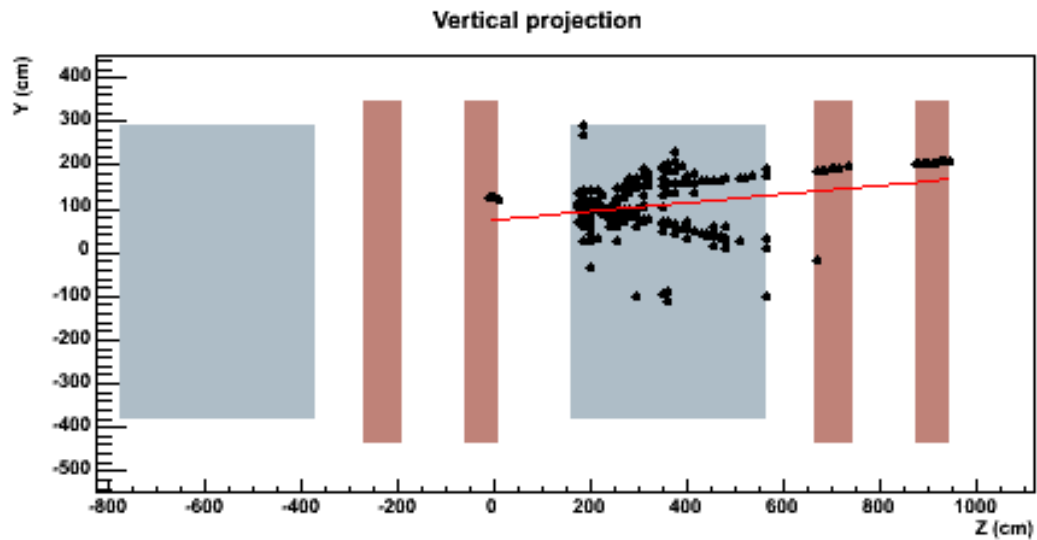
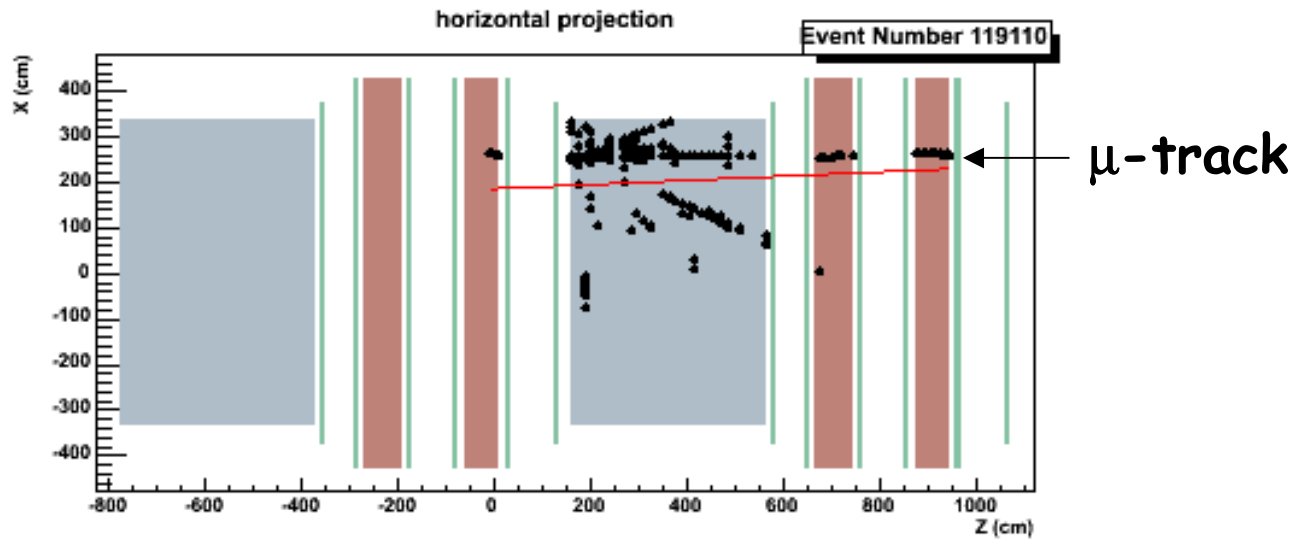


Beam event



CC event originated
from material in front of the
detector (BOREXINO, rocks)

CC event in the first magnet

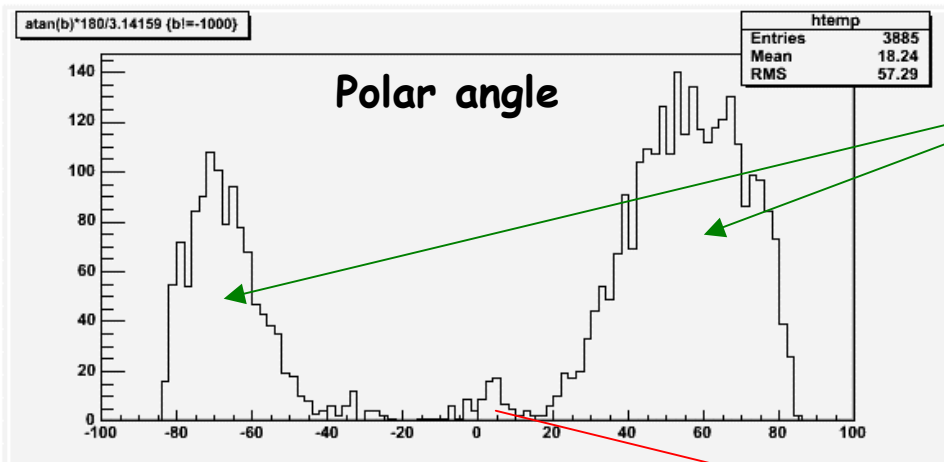


(forgive about the red-line fit)

Angular distribution of all events

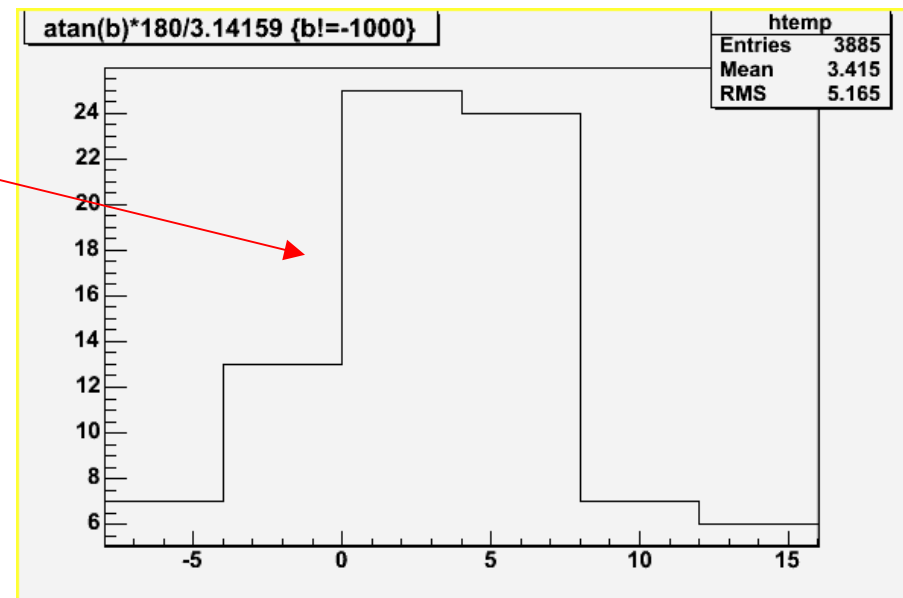
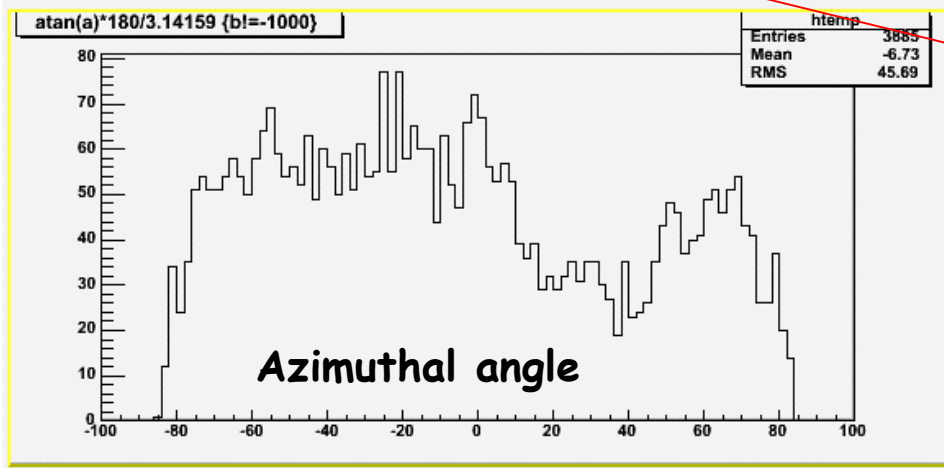


Clean selected events



Cosmic muons

Zoom on Beam events
3.5° from below



Conclusions



- The CNGS beam is operating smoothly with very good quality
- The tracking detectors of OPERA are taking data with practically no dead time
- More than 100 beam correlated events have been observed with a clean time distribution
- The recorded events show the expected tracking performances
- OPERA is now ready for the next step: observing neutrino interactions in the Emulsion Cloud Chamber bricks