

# Turkey at CERN CHORUS





## Participating Groups:



Bogazici University<sup>a</sup>



Cukurova University<sup>b</sup>

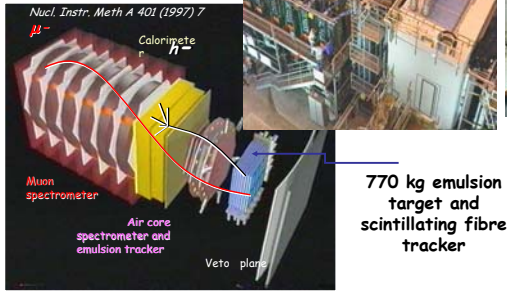


METU<sup>c</sup>

<sup>a</sup>Bogazici University: Engin Arik (group leader), Arif Mailov, Inanc Birol; <sup>b</sup>Cukurova University: Gülsen Öngentü (group leader), Eda Eskut, Aysel Kayis-Topaksu; <sup>c</sup>METU (Middle East Technical University): Perihan Tolun (group leader), Ramazan Sever, Ali Murat Güler, Umut Köse, ERhan Pesen, Meltem Serin-Zeyrek, Mehmet Zeyrek

In the CHORUS experiment we analyze the interactions of the muon-neutrino beam from the CERN SPS accelerator. Our detector has an extremely high sensitivity to detect the presence of short-lived particles (tau leptons) coming from interactions of tau-neutrinos which would be a sign of neutrino oscillation. Positive evidence for oscillation in the CHORUS experiment would imply nonzero neutrino mass. This would have a profound impact on particle physics, astrophysics and cosmology. (<http://choruswww.cern.ch/>)

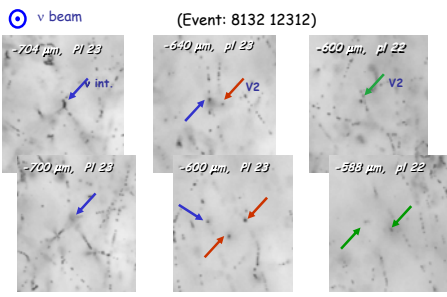
### Cern Hybrid Oscillation Research apparatus (CHORUS) detector



Emulsion Scanning microscope at METU (left). Some of the emulsions have been analyzed with this microscope.

770 kg emulsion target and scintillating fibre tracker

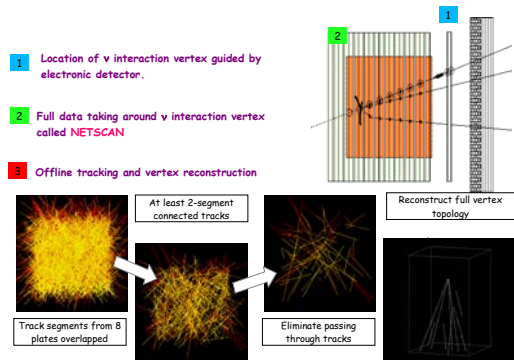
### CCbar candidate



First direct observation of associated charm production in charged-current neutrino interactions.

## Offline Emulsion Analysis

We actively participated in the installation of the apparatus, data taking, and data analysis.



## RESULTS

Beside oscillation analysis, charm production by neutrinos is also studied in the CHORUS experiment and interesting results are found on, e.g.,  $D_0$  and  $c\bar{c}$  production, anti-neutrino charm production, charged particle multiplicity in (anti)neutrino interactions and fragmentation properties of charmed particle production. These analysis are done mainly by the Turkish participants.