Study of charm production in neutrino interactions

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The CHORUS experiment was designed to search for neutrino oscillation $\nu_\mu \to \nu_\tau$ by detecting charged current ν_τ events. Thanks to the $1\mu m$ spatial resolution of nuclear emulsion the decay of the short lived τ particle will be recognized in emulsion by the change of its trajectory.

The CHORUS experiment collected about $10^6 \nu_\mu$ CC events during years 1994-1997. Up to now 140,000 ν_μ events have been located and analysed in the nuclear emulsion target. No candidate events for neutrino oscillation have been found.

The automated emulsion scanning speed increases each year. Now large area volume scanning has become possible. All tracks belonging to an interaction vertex can be recognized and measured. This technique can be applied not only to the search for neutrino oscillation but also for the recognition of events where charmed particles are produced.

Preliminary results obtained from the analysis of a sub-sample of the data on the D^0 production rate in ν_μ CC interactions will be presented.