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SUMMARY OF WA52 (P106)Aachen¹-Bonn²-CERN³-London⁴-Oxford⁵-Saclay⁶ Collaboration

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The most likely source of the excess electron events observed in the beam dump test experiments carried out at CERN in December 1977 are ("prompt") neutrinos from the semi leptonic decay of charmed particles; these would have to be produced in proton-copper collision with a multiplicity of $(3 \text{ to } 6) \cdot 10^{-3}$ D's per interacting proton (or $100 < \sigma(pp \rightarrow D\bar{D} + X) < 200 \mu\text{b}$, assuming $\sigma \sim A^{2/3}$ and no intra-nuclear D-scattering). However, an asymmetry between prompt ν_e and ν_μ fluxes - and hence other sources (emitting ν_e only) could not be excluded. Even trival sources like $K_{2,3}^0$ neutrinos from proton beam scraping were not experimentally excluded. Also the prompt ν rate deduced from the CDHS dump experiment is 2 to 3 times smaller than in the bubble chamber experiments, the discrepancy not being understood.

The aim of the present experiment is to solve these questions by increasing the statistics, using dumps of two densities (to establish the promptness of the signal by extrapolation to infinite density), monitoring proton beam-vacuum chamber interactions along the EPB line continuously, and analysing the data of all detectors in close collaboration.

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