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18 March 1981SEARCH FOR ν OSCILLATIONS IN SPS WIDEBAND BEAMAnnecy¹-CERN²-Imperial College³-Oxford⁴ CollaborationT.C. Bacon³, I. Butterworth³, W. Cameron³, A.L. Grant^{2(*)} G. Myatt⁴,
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This experiment is a sensitive search for ν_μ oscillations into ν_e or ν_τ with the maximum possible distance, 17 km, and the lowest energy of neutrinos consistent with being above the ν_τ interaction threshold. Two fine-sampling calorimeter detectors, one at 940 m and the other at 17 000 m from the target, are used to detect quasi-elastic ν_μ , ν_e or ν_τ events. The comparison of event rates in the two detectors of the same structure will allow limits to be put on any oscillation of ν_μ at least an order of magnitude lower than existing accelerator results.

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|--|---|----------|
| (a) $\nu_\mu \rightarrow \nu_e$ | $\sin 2\theta \Delta m^2 < 0.06 \text{ eV}^2$ | (90% CL) |
| (b) $\nu_\mu \rightarrow \nu_\tau$ | $\sin 2\theta \Delta m^2 < 0.13 \text{ eV}^2$ | (90% CL) |
| (c) $\nu_\mu \rightarrow \text{disappear}$ | $\sin 2\theta \Delta m^2 < 0.15 \text{ eV}^2$ | (90% CL) |

(*) Contact man

(**) Spokesman

EXTENSION OF THE WIDE-BAND NEUTRINO BEAM
THROUGH THE JURA MOUNTAIN

Longitudinal cross-section
 beam path in the air : 6 210 m.
 beam path in the rock : 10 440 m.
 total path : 16 650 m.
 (SPS-Survey group)

