

PROGRESS REPORT ON EXPERIMENT WA44

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The data collected correspond to 2.56×10^{18} 400 GeV protons incident on the SPS target, for both ν and $\bar{\nu}$ wide-band beams.

As mentioned in our proposal, the experiment consists in the study of the following three possible processes:

- 1) $(\nu, \bar{\nu}) + \text{target} \rightarrow \text{leptonic quark} + \text{hadronic jet}$;
- 2) $(\nu, \bar{\nu}) + \text{target} \rightarrow \text{lepton} + (\text{quarks isolated from the hadronic jet})$;
- 3) $(\nu, \bar{\nu}) + \text{target} \rightarrow \text{lepton} + (\text{quarks inside the hadronic jet})$.

The analysis has been completed for the first two reactions mentioned above. The data are summarized in Table 1. The results have been presented at the Madison Conference and published in *Nuovo Cimento Letters* **29**, 251 (1980). They represent an improvement by two orders of magnitude with respect to previously existing limits.

Table 1

Summary of the results on quarks
with $Q = (\frac{2}{3})e$ and $\beta \geq 0.8$, and with $Q = (\frac{1}{3})e$ and $\beta \geq 0.4$

Beam		ν wide-band	$\bar{\nu}$ wide-band
Total No. of protons on target (400 GeV)		$(0.8 \pm 0.08) \times 10^{18}$	$(1.76 \pm 0.18) \times 10^{18}$
No. of ν ($\bar{\nu}$) interactions		$(5.7 \pm 0.80) \times 10^5$	$(2.5 \pm 0.35) \times 10^5$
90% C.L. quark flux upper limit	Leptonic case $Q = (\frac{1}{3})e$ $Q = (\frac{2}{3})e$	$(1.38 \pm 0.25) \times 10^{-5}$	$(3.14 \pm 0.57) \times 10^{-5}$
		$(1.57 \pm 0.28) \times 10^{-5}$	$(3.58 \pm 0.65) \times 10^{-5}$
	Hadronic case $Q = (\frac{1}{3})e$ $Q = (\frac{2}{3})e$	$(2.16 \pm 0.43) \times 10^{-5}$	$(4.93 \pm 0.99) \times 10^{-5}$
		$(2.47 \pm 0.49) \times 10^{-5}$	$(5.63 \pm 1.13) \times 10^{-5}$

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