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LETTER OF INTENTION

2nd December 1966

To   :   EEC

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Subject :   A multipurpose experiment on mass-spectra and decay analysis
             of various resonances.

We refer to the combined system consisting of (1) missing-mass
spectrometer, (2) magneto-strictive wire chambers, (3) counter matrix
and (4) a neutron hodoscope, as the mass-and-decay analyzer for
resonances or M.D.A. Provided that the test run with the wire-chamber
system (January 1967) proves the feasibility of measuring decay properties
of resonances it will become possible to do the following experiments
simultaneously with M.D.A. in a positive $d_{2.5}$ beam of 6 or/and 7 GeV/c:
(see table next page).

(We are preparing the detailed proposal, to be submitted after the
January wire-chamber tests.

About 80% of the equipment is built and tested. We estimate that
the complete system, including programmes, can be ready to run immedi-
ately after the Easter shut-down.)

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6 GeV/c incident particles/burst	Reaction	Experiment
1. π^+ 700,000	$\pi^+ + P \to P + X^+$	Mass-spectrum of singly charged bosons in the $(A_1 - A_2)$ mass region 800 - 1500 MeV with resolution $\pm$ 10 MeV.
2. " "	$X^+ \to \pi^+\pi^+\pi^-$ $\to 3\pi^+ + 2\pi^-$	Spin and parity of X^+'s (A_1, A_2) decaying into 3 charged mesons or into 2 charged plus one π^0.
3. " "	$\pi^+ + P \to N + X^{++}$	Mass spectrum of doubly-charged bosons I = 2 with $\Gamma_{res} = \pm$ 25 MeV (a critical test of the Dalitz quark-model).
4. " "	$X^{++} \to \pi^+\pi^+$ or $\pi^+\pi^+\pi^0$	Spin and parity X^{++}'s (if existent)
5. Protons 700,000	$P + P \to P + N^*$	Mass-spectrum of N^* in the mass-region 1300-1900 MeV, with $\Gamma_{res} = \pm$ 10 MeV (seven N^*'s are reported in this region).
6. " "	$N^* \to P + \pi^0$, $P + \rho^0$ etc.	Spin and parity of N^*'s decaying into 3 charged particles or 2 charged plus one π^0.
7. K^+ 8,000	$K^+ + P \to P + K^*$	Mass-spectrum of strange bosons in mass range 1000 - 1600 MeV with resolution $\Gamma_{res} = \pm$ 10 MeV (might resolve the controversy on peak(s) in the region 1300 - 1400 MeV).
8. " "	$K^* \to K^0\pi^+$	Spin and parity of K^*, decaying into 3 charged mesons or 2 charged plus one π^0.