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PROPOSAL FOR AN EXPOSURE - TO THE NEUTRINO BEAM -  
OF GARGAMELLE USING PROPANE

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Collaboration : open

We propose an exposure of Propane filled Gargamelle to the existing neutrino beam to study the production of resonances (both baryonic and mesonic ones), the high energy inelastic events and the structure factors; and to test recently proposed sum rules.

In relation to these problems, propane offers many advantages with respect to other media. Propane has a high density of "free protons" (in fact there are more free protons per  $\text{cm}^3$  in propane than in liquid hydrogen). The separation of events on protons from those on C can be achieved in general to a good degree of precision.

When events of high multiplicity are considered the determination of the total energy release is, on average, considerably more accurate in propane than in hydrogen. In fact, propane is the best available compromise between accuracy in the momentum determination and efficiency in the detection of neutrals. (In this connection it might be useful to remember that the size of Gargamelle was originally decided just on this issue !).

In view of carrying out an experiment of this type, we propose a best exposure of  $10^5$  pictures - corresponding to  $10^{17}$  protons on the target - to be made in 1972. This test should yield 700  $\nu$  events inside the fiducial volume. This number should be sufficient to confirm the value of the experiment on a larger scale and to determine the best experimental conditions under which it should be carried out.

C. Franzinetti

S. Natali