DEPARTMENT OF PHYSICS
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OSAKA, JAPAN

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Dear Dr. Proca,

I received your letter with great pleasure. I am grateful to you for the kind information of the interesting experiment by M. Ehrenfest and M. Fréon. It is certainly a great progress that the mean life time of the mesoton in the narrow energy band was determined. Their value can easily be translated into the mean life time of the mesoton at rest

$$(4 \pm 2) \ 10^{-5} \ 10^{8}/10^{9} = (4 \pm 2) \ 10^{16} \text{ sec}$$

which is in striking agreement with the value $2 \ 10^{-6}$ sec obtained by Euler and Heisenberg (in Erg. exak. Naturwiss. 1938). Thus, the spontaneous dis-integration of the mesoton seems to be an established fact, although the numerical value differs from the theoretical mean life time by a factor ten. This discrepancy can be diminished, if we, assume a smaller mass for mesoton, which is appreciably smaller than 200 m. *This assumption is not very necessary* For the time being, we do not lay much stress on the numerical value for the life time as obtained by in connection with the theory of the -decay, which cannot reproduce the observed energy specrum. Thus, The matter will be settled, only when the cloud chamber photo-graph showing the ejection of the fast electron *with the predicted energy* from the end (in the gas) of the track of the mesoton will happen to be obtained.

Please give my best regard to Dr. Ehrenfest, to whom I am very grateful for sending a reprint of his paper.

Yours very truly

(Proca 38 Nov 15 に返事)