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Note on the absorption of slow mesotrons
in matter

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§ 1.

A mesotron with the positive (or negative) charge
passing through an absorbing medium, loses its
energy gradually by

i) ionizing atoms,
ii) exciting atoms,

and finally

iii) sometimes by exciting or disintegrating nuclei,

until it disappears suddenly either

iii) by charge's spontaneously into a positive
(or negative) electron and a neutrino (or an antineutrino)

or

iv) by absorbed by the nucleus.

iv) by colliding with the nuclei

Among them, the process ii) can always be
neglected in comparison with i), while the relative
importance of the process iii) with respect to iii)
depends largely on the density of the medium. The majority

of mesotrons, which enter in a dense medium such
lead or water, are absorbed immediately absorbed
by the nuclei after stopped completely, while
those which entered in a _____ medium such
air are most likely to disintegrate spontaneously.
These problems were discussed in detail by Euler

Thus, it is expected that

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DATE

NO. 2

i) and iii)).

and Heisenberg[1] by neglecting the protons ii). In the present note, we want to deal with the problem quantitatively by taking also the mesons iv) into account.

§2.

We assume that a meson with the velocity $v > c\beta$ enters normally into a medium
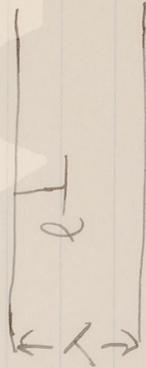
1) Euler and Heisenberg, Ergeb. exakt. Naturwiss (1938), 1.