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U\textsuperscript{238}, and Cf\textsuperscript{252}). Secondly, the gamma quanta energies depends little on the excitation energy of the compound nucleus prior to fission.

The authors express their gratitude to Yu. I. Belyanin for insuring operation of the accelerated tube in the performance of this experiment.


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ZEMPLEN'S THEOREM IN RELATIVISTIC HYDRODYNAMICS

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KHALATNIKOV\textsuperscript{1} has shown that for a relativistic shock wave of low intensity the theorem of Zemplen and the conditions of mechanical stability, \(v_1 > c_1, \quad v_2 < c_2\), are applicable provided only that the following inequality holds:

\[
\left( \frac{\partial^2 (w / n)}{\partial p^2} \right)_s > 0
\]

(1)

(where \(w\) is the heat function per particle, \(s\) the entropy per particle, \(n\) the density of particles measured in the rest system of the particles, and \(p\) the pressure.)

These results are also applicable for relativistic shock waves of any intensity. The proof can be done in a similar way to Landau and Lifshitz, (reference 2, paragraph 84,) for the case when the shock adiabate lies in the plane \((p, w/n.)\) In this case, formula (84,6) will correspond to

\[
1 - \frac{v_1^2}{c_1^2} = (V_1 - V_2) \int \left[ 1 - \frac{\partial^2 (V_1 - V_2)}{\partial s_2 / p_2} \right] d (\gamma^2)
\]

is replaced by

\[
1 - \frac{v_2^2}{c_2^2}
\]

\[
= \left( \frac{w_1}{n_1} \right) \left[ 1 - \frac{\partial^2 (w_1 / n_1)}{\partial s_2 / p_2} \right] d (\gamma^2),
\]

\(j = nu, \quad u = v / \sqrt{1 - v^2}, \quad a = c / \sqrt{1 - c^2},\)

(where \(c\) is the velocity of sound, and the velocity of light is taken as unity.) It follows from this that the quantity \(n/w\), as well as the pressure and the density, are increased on the shock wave.

The inequality (1), for the nonrelativistic case, reduces to the well known conditions,

\[
\frac{\partial^2 (1/n) \partial p^2}{\partial s^2} > 0.
\]

For a relativistic ideal gas we have

\[
\frac{\partial^2 (w / n) \partial p^2}{\partial s^2} = \frac{2 (2 - \gamma)}{\gamma (\gamma - 1)^2} p a^2.
\]

The last expression is always positive, since the quantity \(\gamma\) is within the interval\textsuperscript{3} \(1 < \gamma \leq \frac{5}{3}\).

It should be noted that for an ultra-relativistic ideal gas, \(\gamma = \frac{5}{3}\).

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ON ELECTROMAGNETIC SHOCK WAVES IN FERRITES

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We investigate the propagation of a uniform plane electromagnetic wave in a medium with non-linear dependence of the induction \(B\) on the magnetic field \(H.\) We assume to begin with that the