given in [3], likewise does not exclude the possible existence of open trajectories.

Without dwelling in detail on the form of the Fermi surface of chromium, which will be investigated in detail in the nearest future, we can suggest on the basis of our preliminary data that the direction of the open trajectories coincides with the [100] axis.

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CONCERNING ONE SINGULARITY OF HIGH-ENERGY JETS IN NUCLEAR EMULSIONS

N. M. Gerasimova

Research Institute of Nuclear Physics, Moscow State University

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A distinguishing feature of the energy distribution of secondary particles in accordance with the Landau theory [1] is the presence of a particle that carries away a large fraction of the energy of the colliding particles. This circumstance allows us to point to an additional criterion in the observation of the Landau process in "jets" generated in nuclear photoemulsions.

In an earlier study [2], where it was shown that the greater part of the entire energy is concentrated in the leading front of a relativistically expanding blob of nuclear liquid in the traveling wave, only the simplest variant was considered, namely a nucleon collision. In that case, in a system of equal-velocity coordinates, coinciding with the center-of-mass system for collisions of identical particles, each of the traveling waves propagating with and against the direction of the incoming nucleons contains a fraction $\alpha_w = T_k/T_0 \simeq \frac{1}{2}(E_0/2Mc^2)^{-1/4}$ of half the total entropy, and a fraction $\beta_w = (T_k/T_0)^{0.27} \times 0.79 \simeq (E_0/2Mc^2)^{-1/4} \times 0.65$ of half of the total energy. Here $T_k \simeq \mu c^2$ and $T_0 \simeq 2\mu c^2(E_0/2Mc^2)^{1/4}$ (μ and M are the masses of the pion and the nucleon). At a multiplicity $N_0 = 2(E_0/2Mc^2)^{1/4}$, the corresponding number of particles N_w in each wave is 0.5. Therefore the fastest particles will receive not only the traveling wave energy, but also that part of the energy distribution corresponding to the front of the region of nontrivial solution and containing the same amount of entropy. However, the concentration of energy with respect to the entropy is already one third as large [3]. Therefore the fractions of the energy received by the fastest particle in the equal-velocity system (β_1) and in the laboratory coordinate system (β_0) can be estimated with good accuracy from the formula

$$\beta_0 = \beta_1 = \beta_w + [(1 - N_w)/0.5](\beta_w/3) \simeq (4/3)\beta_w$$

In an equal-velocity system, moving into the rear cone, the energy of the fastest particle turns out to be equal to $\beta_1 Mc^2$ in the laboratory system. Inasmuch as in most cases this particle will be a pion [1], at not too large a primary energy it turns out to be relativistic with a Lorentz factor $\gamma = \beta_1 M/\mu$.

In an interaction between identical nuclei, the corresponding characteristics turn out to be

$$\beta_0^{AA} = [2/(4/3)](\beta_w/A)A^{0.07}; \quad \gamma^{AA} = [2/(4/3)]\beta_w A^{0.07}(M/\mu)$$

The coefficients 2 and 4/3 pertain respectively to a head-on collision of nuclei and to a head-on collision of peripheral nucleons. Although in absolute magnitude $\beta_0^{AA} < \beta_0$, the fraction of the energy carried away by the fastest particle, relative to the energy E_0/A of one nucleon in the incoming nucleus turns out to be higher here than in the interaction between nucleons, with $\gamma^{AA} > \gamma$.

In interactions between the nucleon and a nucleus, the asymmetry of the initial conditions causes the fraction of the entropy and of the energy, in the equal-velocity system, contained in the forward traveling wave (moving in the same direction as the nucleon), to be equal to $\ell_2\alpha_w$ and $\ell_2\beta_w$, while in the opposite direction it is equal to $\ell_1\alpha_w$ and $\ell_1\beta_w$. Taking account the averaging over all the collisions, from frontal to collision with the peripheral nucleon, we have

$$\ell_1 = 0.91\{[A - (2A^{1/3} - 1)^{3/2}]/(A^{1/3} - 1)^2\} - 0.36$$

$$\ell_2 = 1.36 - 0.24\{[A - (2A^{1/3} - 1)^{3/2}]/(A^{1/3} - 1)^2\}$$

In a direct wave

$$N_w^{1A} = \ell_2 N_w A^{0.19} = 0.5\ell_2 A^{0.19}; \quad \beta^{1A} = \ell_2\beta_w + [(1 - N_w^{1A})/0.5A^{0.19}](\beta_w/3)$$

and in the backward wave

$$N_w^{A1} = 0.5\ell_1 A^{0.19}$$

For $A < 3$ we have $N_w^{A1} < 1$ and here

$$\beta_1 = \ell_1\beta_w + [(1 - N_w^{A1})/0.5A^{0.19}](\beta_w/3)$$

For $A \geqslant 3$ we have $N_w^{1A} > 1$ and here

$$\beta_1 = \ell_1\beta_w/N_w = 2\beta_w/A^{0.19}$$

If the nucleon is incident on the nucleus in the laboratory system, we have $\beta_0^{1A} = \beta_1^{1A}$ and $\gamma^{1A} = \beta_1^{A1}(M/\mu)$. To the contrary, if the nucleus is incident and the nucleon is at rest, we have β_1^{A1}/A and $\gamma^{A1} = \beta_1^{1A}(M/\mu)$.

In the case of interaction between nuclei with different atomic numbers, the smaller nucleus cuts a tube through the bigger one [1]. The total number N_0 of particles is equal approximately to

$$2A_s(A_b/A_s)^{0.19}(E_0/2A_sMc^2)^{1/4}$$

(the subscripts s and b denote the smaller and bigger nucleus). In this case

$$\beta_0^{sb} = 2\beta_1^{nn}A_s^{0.07}/A_s(A_b/A_s)^{0.19}; \quad \beta_0^{bs} = 2\beta_1^{nn}A_s^{0.07}/A_b(A_b/A_s)^{0.19}$$

$$\gamma^{sb} = \gamma^{bs} = 2\beta_1(M/\mu)/A_s^{0.93}(A_b/A_s)^{0.19}$$

The values of β_0 and γ for some collisions are given below

A_1, A_2	$1\to1$	$4\to4$	$20\to20$	$1\to4$	$1\to16$	$4\to1$	$16\to1$	$4\to16$	$16\to4$
$E_0 = 10^{12}$ eV, $\beta_0 =$	0.58	0.24+0.16	0.054+0.036	0.46	0.33	0.16	0.034	0.24	0.06
$E_0 = 10^{14}$ eV, $\beta_0 =$	0.43	0.17+0.12	0.038+0.027	0.34	0.24	0.12	0.023	0.18	0.045

A_1, A_2	$1\to1$	$4\to4$	$20\to20$	$1\to4$	$1\to16$	$4\to1$	$16\to1$	$4\to16$	$16\to4$
$E_0 = 10^{12}$ eV, $\gamma =$	0.039	0.064+0.043	0.072+0.049	0.044	0.033	0.031	0.022	0.016	0.016
$E_0 = 10^{14}$ eV, $\gamma =$	0.029	0.047+0.031	0.053+0.035	0.032	0.025	0.023	0.016	0.012	0.012

Thus, the presence of a relativistic π meson, moving backward in the laboratory frame, can serve as a criterion for the selection of "jets" generated in nuclear emulsions by the Landau hydrodynamic process.

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CORRECTION

to article by N. M. Gerasimova "Concerning One Singularity of High-energy Jets in Nuclear Emulsions" (JETP Letters 1, No. 5, p. 51; translation p. 143).

The values of γ listed in the lower two lines of the table must be multiplied by 100.