can be neglected in our model.

[4]) L. B. Okun' has made a remark that if the interaction $W_{5/2}$ conserves parity, then an tentermediate case arises: the decay $K_2 \to 2\pi$ proceeds only via the scheme $K_2 \to K_1 \to 2\pi$, while the decay $K_1 \to 3\pi$ proceeds essentially via CP violation in the decay amplitude. In this case the CP violation in $K \to 3\pi$ decays will be essentially $W_{1/2}/W_{3/2}$ larger than in $K \to 2\pi$ decays.

INVESTIGATION OF GALVANOMAGNETIC PROPERTIES OF TRANSITION METALS IN STRONG MAGNETIC FIELDS

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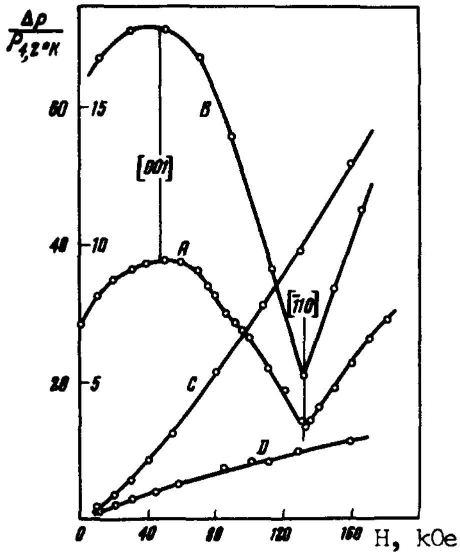
In the present communication we present the results of measurements of the galvanomagnetic properties of some transition metals, carried out in large effective magnetic fields. The measurements were made with apparatus described in [1], which yielded ~ 180 kOe pulsed fields of ~ 10^{-2} sec duration, the sensitivity of the recording part of the system amounting to ~ 2×10^{-7}. Use of this apparatus has made it possible to obtain data on the galvanomagnetic properties of transition metals in which the ratio of the resistance at room temperature to the resistance at liquid-helium temperature was relatively small.

We measured the magnetoresistance of W, V, Ti, and Cr. The measurements were made with single crystals several millimeters long with transverse dimensions approximately 0.5 - 0.3 mm. The potential and current leads were soldered to the samples by means of a discharge from a small capacitor bank. The orientation of the samples was determined by x-ray patterns.

In spite of the relatively small value of $\rho_{300°K}/\rho_{4.2°K}$, which ranged from 130 to 175 for such metals as Cr, Ti, and V, the maximum values of the effective field were sufficiently high and amounted to ~ 2×10^7. The change of the resistance of V and Ti in the magnetic field was quite insignificant. This pertains especially to V (see Fig. 2), in which $\Delta\rho_{4.2}(H)/\rho_{4.2}(H_c)$ (H_c smaller than 1 kOe) at $H_{eff} = 1.6 \times 10^7$ was only 0.55. The resistance of both V and Ti increases in a nearly quadratic fashion, and practically no anisotropy of the resistance is observed in either case.

The data obtained for W have confirmed the results published previously by others [2]. The magnitude of the anisotropy of the magnetoresistance does not change up to fields H ~ 150 kOe, and the resistance increases almost quadratically.

The results obtained with chromium single crystals are very interesting. In this case (Fig. 1), unlike in the metals considered above, the angular dependence of the resistance indicates a rather larger anisotropy in the variation of the resistance in the magnetic field, the anisotropy increasing in magnitude with increasing field. The direction of the minimum of the angle diagram corresponds to $\vec{J} \parallel [110]$ and $\vec{H} \parallel [\bar{1}10]$. The change of resistance with the field at the maximum of the angle plots is proportional to $H^{1.6}$, while at the minimum the exponent of H is somewhat smaller than unity. The maximum value of $\Delta\rho/\rho$ is 50 for the maximum and 10 for the minimum.



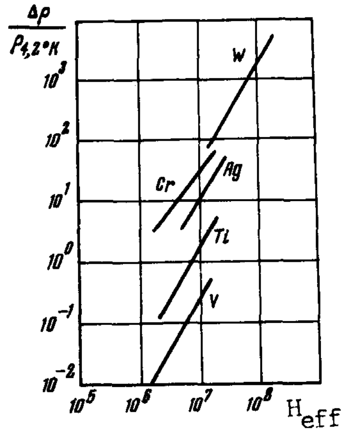


Fig. 2. Log-log plot of magnetoresistance ($H_{eff} = H\rho_{300}/\rho_{4.2}$)

Fig. 1. A and B - angular distributions of the magnetoresistance of single-crystal Cr at 44 and 74 kOe, respectively. The axis of the sample coincides with the boundary axis of the crystal. The minimum corresonds to H||[$\bar{1}$10]. C and D - magnetoresistance in the maximum and in the minimum, respectively. The scale for curves A and B is on the right, and for C and D on the left

Figure 2 shows a log-log plot of the variation of the resistance in the magnetic field of all the investigated metals, measured in the direction of the angular-distribution maximum. For comparison, our data for Ag are also presented.

If we examine the results from the point of view of modern notions considering the behavior of electrons in metals, then we can state that vanadium and titanium have apparently closed Fermi surfaces, since no anisotropy of magnetoresistance is observed for them at $H_{eff} \sim 2 \times 10^7$. Moreover, Ti and especially V have a very small change of resistance in the magnetic field (see Fig. 2), whereas W, which also has a closed Fermi surface, has a rather large change.

The results obtained with chromium indicate that this metal has an open Fermi surface. Indeed, the resistance anisotropy of this metal is large and furthermore increases strongly with the magnetic field. The variation of the resistance with field at the minimum of the anglular distribution is slower than linear, although no full saturation is observed. Naturally, to reconstruct the Fermi surface of chromium it is necessary to carry out measurements with a larger number of samples having different orientations. All the hitherto investigated body-centered metals, such as Na, W, and Mo, had closed Fermi surfaces. Therefore Cr is apparently the only metal known so far with open Fermi surface and with a body-centered lattice. It must also be noted that a theoretical analysis of the possible Fermi surface of chromium, 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

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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