SOV/126-6-2-6/34

AUTHORS: Kondorskiy, Ye. I. and Smirnova, L. G.

TITLE: The Frequency Dependence of the Permeabilities of Certain Fe-Ni and Fe-Co Alloys at 10^5 - 10^7 c/s (Issledovaniye chastotnoy zavisimosti pronitsayemosti nekotorykh zhelezonikelevykh i zhelezokobal'tovykh splavov v diapazone chastot 10^5 - 10^7 gerts)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 237-246 (USSR)

ABSTRACT: Strip material consisting of typical Mo permalloy, of Armco iron, and of Fe-Co alloys of 20, 36, 60 and 72% Co content was used. The latter alloys were hot-rolled after heating to 1150°C for 15 mins from the cast state, to give a final thickness of 1.4 - 1.6 mm, and were then annealed at 920-930°C for 3 mins followed by quenching in water. Sections of this strip were then rolled to 0.35- - 0.40 mm thick at 200°C. Similar treatments were applied to give strip 0.010-0.016 mm thick (not for Co contents of 40-50%). Table 1 gives analytical data for the resulting strip. 10 mm wide strips of all materials were wound into toroids of internal diameter 2 cm and radial thickness about 4 mm. Table 2 gives data

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The Frequency Dependence of the Permeabilities of Certain Fe-Ni and Fe-Co Alloys at 10^5 - 10^7 c/s

on the strips used for winding (Armco iron at the top). Optical and X-ray tests showed the materials to consist of single phases only, without crystallographic texture. The measurements of the resistive and reactive components of the impedances of the wound toroids were made on a Maxwell bridge up to 3×10^5 c/s, and from 0.4 to 20 Mc/s on the bridge system shown in Fig.1, in which the bridge is balanced twice (once with terminals 1 and 2 short-circuited, once with the specimen inserted between them). The self-capacitances of the windings were determined from resonance measurements. Figs.2-4 show the μ values (Armco iron at the top in Fig.2). Fig.5 shows theoretical curves for various cases of domain structure, plus the experimental data; Figs.6-8 do the same for other specimens. The experimental points lie closest to the curves corresponding to layered structures with their boundaries normal to the surface of the specimen.

SOV/126-6-2-6/34

The Frequency Dependence of the Permeabilities of Certain Fe-Ni and Fe-Co Alloys at 10^5 - 10^7 c/s

There are 9 figures, 2 tables and 10 references, 8 of which are Soviet, 2 English.

ASSOCIATION: TsNIIChM

SUBMITTED: August 5, 1957

Card 3/3 1. Alloys--Magnetic factors 2. Alloys--Heat treatment
3. Alloys--Test results 4. X-ray analysis

SOV/126-6-4-5/34

AUTHOR: Bakeshko, N.A.,
Kondorskiy, Ye.I.

TITLE: Polarization of Nuclei in Metallic Lithium (Polyarizastiya yader v metallicheskom litii)

PERIODICAL: Fizika metallov i metallovedeniye, 1958, Vol 6, Nr 4, pp 609-613 (USSR)

ABSTRACT: Overhauser (Ref.1) showed theoretically that the saturation of resonance associated with conduction electrons should lead to a high degree of induced nuclear polarization. The present paper is devoted to an experimental study of the polarization of nuclei in metallic lithium. Experimental results are given which were obtained during 1954-1955. As was shown in Ref.1, polarization of nuclei can in principle be detected in two ways namely, either by the shift of the electron resonance or by observing the amplitude of the nuclear magnetic resonance signal since this amplitude is directly proportional to the degree of polarization of nuclei. The latter method was used by the present

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Polarization of Nuclei in Metallic Lithium

authors. The experiment was carried out in weak magnetic fields. The value of the gyromagnetic ratio for Li^7 was found to be 1.040×10^{-4}, which is in good agreement with the value given by Ramsey in Ref.18. In order to establish the dependence of polarization of nuclei on the degree of saturation of the resonance associated with conduction electrons, the amplitudes of the signal were measured for different intensities of the high frequency field. Fig.4 shows the amplitude of the signal in arbitrary units as a function of the field in oersted. As can be seen, the amplitude of the signal and, consequently, the polarization of the nuclei, increases as the field increases and reaches a maximum at about 5 oersteds, after which it remains constant. The nuclear resonance line-width at 57°C was found to be 0.08 oersted. The temperature dependence of the Overhauser effect was investigated in the region 0-75°C

Polarization of Nuclei in Metallic Lithium

and the results are reported in Ref.21. There are 4 figures and 23 references of which 2 are Italian, 16 English and the rest Soviet.

ASSOCIATION: Fizicheskiy Fakul'tet Moskovskogo Gosudarstvennogo Universiteta Imeni M.V.Lomonosova (Physical Department of Moscow State University imeni M.V.Lomonosov)

SUBMITTED: 14th January 1957.

Card 3/3

AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova, L. A. SOV/56-34-5-3/61

TITLE: The Electric Resistance of Iron, Nickel, and Nickel-Copper Alloys at Low Temperatures (Elektricheskoye soprotivleniye zheleza, nikelya i splavov nikelya s med'yu pri nizkikh temperaturakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1070 - 1076 (USSR)

ABSTRACT: This work investigates the temperature dependence of the electric resistance of the metals and alloys, in question in the temperature interval from 2 to 78° K. The electric resistance was measured potentiometrically. Wires, 150 to 160 mm long and 0,1 - 0,2 mm in diameter, which were wound upon a copper cylinder served as samples. The data concerning the composition of the samples are given in a table. All samples had been annealed for one hour at 900° in a vacuum. Afterwards they were slowly cooled. 3 other samples which also had been annealed at 900°C were quenched. In the experiments within the temperature intervals 2 - 4,2; 14 - 20,4 and 63,1 - 77,3° the temperature was determined

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by measuring the pressure. The curves of the temperature dependence of the specific electric resistance ϱ of iron, nickel, and nickel-copper alloys are illustrated in a diagram. Some curves of this kind contain steps in the temperature range from 3 to 10° K. These steps as a rule are smaller with the annealed samples than with the quenched ones. The specific resistance ϱ was represented as a power series: $\varrho(T)=\varrho_0+\alpha T+\beta T^2+ \ldots$. Two diagrams illustrate the functions of $(\varrho-\varrho_0)/T$ versus T and of $\ln(\varrho-\varrho_0)$ versus ln T. For the first function the deviations from the straight line begin at $T > 30^{\circ}$K. In the interval $4 < T < 18^{\circ}$K the temperature dependence of the electric resistance can be described by 3 terms of the above mentioned power series or by the formula $\varrho = \varrho_0 + aT^m$. For all samples the exponent is close to 3/2. At temperatures above 20 - 30°K probably a law of the T^5 type is valid. In the interval $4 < T < 77^{\circ}$K the temperature dependence can be described by the formula $\varrho=\varrho_0+\alpha T+\beta T^2+\gamma T^{\ell}$ or $\varrho=\varrho_0+aT^m+bT^n$, where ℓ and n are close to 5. Another diagram illustrates the dependence of the remanent resistance ϱ_0 on the

The Electric Resistance of Iron, Nickel, and Nickel-Copper Alloys at Low Temperatures SOV/56-34-5-3/61

copper concentration in the nickel-copper alloys for quenched and annealed samples. Upto 25% copper this dependence is linear. There are 7 figures, 1 table, and 14 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: November 6, 1957

1.Iron--Resistance 2.Nickel--Resistance 3.Copper-nickel alloys --Resistance 4.Metals--Temperature factors

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SOV/56-35-2-54/60

18(6)

AUTHORS: Kondorskiy, Ye. I., Rode, V. Ye., Gofman, U.

TITLE: The Saturation Magnetization of Nickel-Copper Alloys at Low Temperatures (Namagnichennost' nasyshcheniya nikel'-mednykh splavov pri nizkikh temperaturakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 2 (8), pp 549-550 (USSR)

ABSTRACT: The aim of this paper is the verification of the "law of the 3 straight lines" $I = I_0(1 - CT^{3/2})$ for saturation magnetization at low temperatures and the determination of the parameter C in the above-given formula for nickel-copper alloys with a copper content $\leqslant 50$ %. The measuring device permitted immediate observation of the variation of the saturation magnetization of the specimen when its temperature is varied. The temperature variation was carried out by evacuation of the vapors of the boiling liquid (oxygen, nitrogen, hydrogen, and helium) in which the specimen was placed. The variation of the magnetization was measured by means of a photoelectrical fluxmeter. A table shows the values of

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The Saturation Magnetization of Nickel-Copper Alloys at Low Temperatures

the magnetization I_o and of nickel-copper alloys in a field of H = 3300 Oersted for various temperatures and also the values of C, calculated according to a formula of Bloch (Blokh). From these values of C it is possible to obtain (in the case of pure metals) the exchange integral J . The results of these calculations are given in a table. The exchange parameter J^* which was calculated in this way remains constant (with an accuracy of 10 - 15 %) for all the investigated nickel-copper alloys. There are 1 table and 3 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet(Moscow State University)

SUBMITTED: May 28, 1958

24(5)

AUTHORS: Kondorskiy, Ye. I., Sedov, V. L. SOV/56-35-4-3/52

TITLE: Changing of the Saturation Magnetization and of the Electric Resistance of Iron-Nickel Alloys in the Case of Pressure From All Sides and Low Temperatures (Izmeneniye namagnichennosti nasyshcheniya i elektricheskogo soprotivleniya zhelezo-nikelevykh splavov pri vsestoronnem szhatii pri nizkikh temperaturakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 4, pp 845-853 (USSR)

ABSTRACT: For their experiments the authors used iron-nickel alloys with a 38 to 45% nickel content; the samples were cylindrical (length 55 mm, diameter 3 - 3.5 mm) and were tempered at 1000°C for from 6 to 8 hours. For measuring differential magnetic susceptibility samples of 200 mm length and 8 mm cross section were used. Pressure amounted to 1700 - 1900 kg/cm^2 and was produced in a bomb by means of freezing water, according to the method developed by Lazarev and Kan (Ref 6). The experiments were carried out in the temperature interval of from 1.7 to 77°K. Magnetic field strength amounted to up to 7000 Oe.

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Changing of the Saturation Magnetization and of the Electric Resistance of Iron-Nickel Alloys in the Case of Pressure From All Sides and Low Temperatures SOV/56-35-4-3/52

The results obtained are discussed in detail on the basis of tables and diagrams. The extreme values of saturation magnetization and of the electric resistance for T→0 depend on pressure; the signs of this dependence differ. The limiting values determined vary with the field also in the case of high H-values. For T→0 the differential magnetic susceptibility does not vanish within the range of saturation. The ratios between limiting value modifications of saturation magnetization and of the electric resistance (under the influence of pressure and of a field) are close to one another. There are 7 figures, 3 tables, and 10 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: April 23, 1958

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SOV/56-35-6-40/44

24(3), 18(3)

AUTHORS: Kondorskiy, Ye. I., Sedov, V. L.

TITLE: On the Antiferromagnetism of the γ-Phase of Iron (Ob antiferromagnetizme γ-fazy zheleza)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 6, pp 1579-1579 (USSR)

ABSTRACT: The present paper investigates the problem as to whether the γ-phase of iron is ferromagnetic or antiferromagnetic at low temperatures if γ→α-transition is prevented in time by the introduction of alloying admixtures and by a suitable thermal treatment. The authors investigated the temperature dependence of the magnetic susceptibility of austenite steel in the temperature interval of from 109 to 11.3°K. The sample investigated contained 18% Cr and 9% Ni. Specific susceptibility χ was investigated by means of a method already previously described by the authors. Measuring results are given by a table. At about 40°K a marked antiferromagnetic transformation occurs, and the paramagnetic Curie (Kyuri) - point is at about (28 ± 3) °K. The results obtained make it appear probable that the exchange interactions in a surface-centered iron lattice

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lead to antiferromagnetism like in the case of the adjacent elements manganese and chromium. There are 1 figure and 4 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 18, 1958

20-119-5-23/59

AUTHORS: Kiseleva, V. A., Kondorskiy, Ye. I.

TITLE: Investigation of the Temperature Dependence of Some Properties of Ferrites Within the Range of Centimeter Waves (Izucheniye temperaturnykh zavisimostey nekotorykh svoystv ferritov v diapazone santimetrowykh voln)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 5, pp. 926-928 (USSR)

ABSTRACT: The aim of the present paper is the investigation of the rotation of the polarization plane of a wave of the length 3,2 cm in the nickel-magnesium ferrites $Ni_{1-x}Mg_xFe_2O_4$ at temperatures of from -196^0 to $+220^0$. The following magnitudes were measured: The angle of rotation of the polarization plane, the ellipticity and the attenuation of the wave that passed the ferrite sample. On this occasion the ferrite sample was in a constant longitudinal magnetic field. The composition of the ferrite samples corresponded to the following values: x: 0,2; 0,3; 0,5; 0,75; 1. The block scheme of the apparatus is shown by a

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Investigation of the Temperature Dependence of Some Properties of Ferrites Within t › Range of Centimeter Waves

20-119-5-23/59

nickel-magnesium system analogous changes of the angle of rotation of the polarization plane were observed. The fourth diagram shows curves on the dependence of the resonance field strength on the temperature for samples with x = 0,3 and x = 1. From the data given, as well as from the investigation of other samples is concluded that with rising temperature the resonance shifts toward smaller field strengths. This anisotropy obviously is connected with the change of the field of the anisotropy. There are 4 figures, 1 table, and 6 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: October 15, 1957, by I. K. Kikoin, Member, Academy of Sciences, USSR

SUBMITTED: June 11, 1957

Card 3/3

AUTHORS: Kondorskiy, Ye. I., Rosenberg, M. 807/20-120-4-18/67

TITLE: On the Temperature-Dependence of the Coercitive Force of Nickel and Iron-Nickel Alloys in Thin Samples (O temperaturnoy zavisimosti koertsitivnoy sily nikelya i zhelezo-nikelevykh splavov v tonkikh obraztsakh)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 4, pp. 753-756 (USSR)

ABSTRACT: By the present paper the attempt is made to find out whether the character of the temperature dependence of the coercitive force depends on the thickness of the foil (especially with such thicknesses in the case of which the coercitive force increases). The authors investigated the temperature dependence of highly riveted and annealed thin-walled samples of nickel and binary iron-nickel alloys with 85, 78 and 50 % nickel. Measurements were carried out in a solenoid within a temperature interval of from -196 to 300°. The rolled foil-shaped samples had thicknesses of 0,35; 0,2; 0,1; 0,05; 0,02; 0,01 and 0,005 mm. Also the thermal treatment of the various samples is described. The measurements carried out confirmed the

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On the Temperature-Dependence of the Coercitive Force of Nickel and Iron-Nickel Alloys in Thin Samples

authors' opinion that the possible influence exercised by thickness is disguised by the considerable increase of the coercitive force (as a result of internal mechanical tensions caused during thermal treatment). There are no rules governing the dependence of coercitive force on the thickness of these samples. The temperature dependence of the coercitive force of the samples rolled in the manner described was approximately the same in the case of all thicknesses. In samples of pure nickel and in the alloy containing 78 % Ni the coercitive force was proportional to $\sqrt{\Theta - T}$ in the case of all thicknesses in the interval from room temperature to Curie (Kyuri)-point; here Θ denotes Curie temperature. After annealing of the previously rolled samples a regular dependence of the coercitive force of samples of all compositions on the thickness of the foil is observed. With a reduction of thickness from 0,35 to 0,1 mm the coercitive force changes only little; however, it increases considerably if the thickness of the foil is further reduced. The critical thickness of pure nickel and of the alloy containing 50 % nickel is greater than with an alloy containing 85 or 78 % Ni.

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On the Temperature-Dependence of the Coercitive Force of Nickel and Iron-Nickel Alloys in Thin Samples

The temperature dependence of the coercitive force after the rolling of annealed samples the thickness of which varies from 0,1 to 0,005 mm is approximately equal. In the sample containing 78 % Ni the character of the temperature dependence of the coercitive force hardly changed at all. The increase of the coercitive force with a decreasing thickness of the foil (down to 0,005 mm) may be explained by admixtures which had penetrated into the foils while they were being treated. There are 3 figures and 9 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

PRESENTED: October 15, 1957, by I. K. Kikoin, Member, Academy of Sciences, USSR

SUBMITTED: June 11, 1957

1. Nickel--Stresses 2. Iron-nickel alloys--Stresses 3. Iron-nickel alloys--Physical properties 4. Thermal stresses--Analysis

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LIVSHITS, Boris Grigor'yevich, prof., doktor tekhn.nauk; Prinimali uchastiye: PIGUZOV, Yu.V., kand.tekhn.nauk; SOLOV'YEVA, N.A., kand.tekhn.nauk. KONDORSKIY, Ye.I., prof., doktor fiz.-matem. nauk, retsenzent; RAKHSHTADT, A.G., dotsent, kand.tekhn.nauk, red.; MIL'KIND, V.D., tekhn.red.

[Physical properties of metals and alloys] Fizicheskie svoistva metallov i splavov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1959. 366 p. (MIRA 13:5)
(Metals)

Kondorskiy, Ye. I.

24(0) SOV/30-59-2-42/60

AUTHOR: Khalatnikov, I. M., Doctor of Physical and Mathematical Sciences

TITLE: Investigations of Low-temperature Physics (Issledovaniya po fizike nizkikh temperatur)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 2, pp 98-100 (USSR)

ABSTRACT: The 5th All-Union Conference on this problem took place in Tbilisi from October 27 to November 1, 1958. It was attended by physicists from Moscow, Khar'kov, Leningrad, Tbilisi, Sverdlovsk, and Kiyev. 4 fields of low-temperature physics were discussed: superliquidity of liquid helium II, supraconductivity, antiferromagnetism, magneto-resistive effect. The following reports and communications were heard: A. A. Abrikosov, L. P. Gor'kov reported on the investigation of the properties of supraconductive alloys. A. A. Abrikosov, L. P. Gor'kov, I. M. Khalatnikov spoke of properties of supraconductors in the high-frequency magnetic field. D. V. Shirkov and Chen' Chun'-yan' and Chzhou Si-shin', two young Chinese scientists working at Moscow University, described investigations for determination of the influence exercised by the Coulomb (Kulon) interaction of charges on supraconductivity. V. V. Tolmachev explained the

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nature of the so-called collective excitations of the Bose type in supraconductors. D. N. Zubarev, Yu. A. Tserkovnikov spoke of the thermodynamics of supraconductors and B. T. Geylikman, V. Z. Kresin of the thermal conduction of supraconductors. Yu. V. Sharvin, V. F. Gantmakher reported on experimental work with supraconductors. N. V. Zavaritskiy spoke of the measurement of the anisotropy of thermal conductivity in the supraconductive state. In a series of reports problems of the superliquidity of helium were discussed, which was discovered in 1938 by P. L. Kapitsa and the theory of which was set up in 1941 by L. D. Landau. E. L. Andronikashvili and his collaborators investigated the properties of rotating helium. V. P. Peshkov spoke of the effect of the formation of the boundary between superliquid and non superliquid helium. Guan Vey-yan', collaborator of the Institut fizicheskikh problem (Institute of Physical Problems) investigated the properties of the so-called jump in temperature of Kapitsa. I. M. Lifshits, V. G. Peschanskiy investigated galvanomagnetic phenomena in strong magnetic fields for metals with open Fermi surfaces. N. Ye. Alekseyevskiy, Yu. P. Gaydukov experimentally investigated the resistance anisotropy of gold monocrystals in the

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magnetic field. L. S. Kan, B. G. Lazarev combine the presence of a temperature minimum with the structural state of the metal. M. Ya. Azbel' reported on the quantum theory of metallic conductivity in the alternating electromagnetic and constant magnetic field. A. S. Borovik-Romanov reported on the weak ferromagnetism in antiferromagnetic samples of $MnCO_3$. N. N. Kreynes, Ye. A. Turov investigated the magnetic anisotropy of the antiferromagnetic monocrystals $CuSO_4$ and $CoSO_4$. R. A. Alikhanov reported on neutronographic investigations of antiferromagnetics. Ye. I. Kondorskiy and collaborators reported on the susceptibility of nickel and nickel-copper alloys at low temperatures. M. I. Kaganov, V. M. Tsukernik reported on kinetic phenomena in ferromagnetics at low temperatures. A. I. Akhiyezer, V. G. Bar'yakhtar, and S. P. Peletminskiy spoke of computations of the relaxation of the magnetic moment in ferromagnetic dielectrics at low temperatures. T. I. Sanadze spoke of observation results of paramagnetic resonance of terbium in the $TbNO_3 \cdot 6H_2O$ nitrate. G. R. Khutsishvili gave a theoretical analysis of the orientation of the nuclear spin in the Overhauser (Overkhauzer)

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effect in nonmetals. B. N. Samoylov, N. M. Reynov and collaborators reported on obtaining orientated nuclei. N. V. Bulatova, V. S. Kogan and B. G. Lazarev showed that hydrogen isotopes in solid state have different structures. I. A. Gindin, B. G. Lazarev, Kh. D. Starodubov and V. I. Khotkevich detected polymorphism in a number of metals at low temperatures. E. L. Andronikashvili, V. P. Peshkov and M. P. Malkov reported on the stage of development of foreign scientific research work in the field of low-temperature physics. At the end of the Conference P. L. Kapitsa spoke of his successful development of investigations in the field of low-temperature physics. The participants of the Conference visited the Institut fiziki Akademii nauk Gruzinskoy SSR (Physics Institute of the Academy of Sciences of the Gruzinskaya SSR) and the Physics Faculty of Tbilisi University as well as the building of the new research atomic reactor near Tbilisi.

24 (3)

AUTHORS: Gurvich, Ye. I., Kondorskiy, Ye. I. SOV/48-23-3-10/34

TITLE: The Influence of Macroscopic Inhomogeneity on the Dynamic Characteristics of Magnetically Soft Alloys in Weak Fields (Vliyaniye makroskopicheskoy neodnorodnosti na dinamicheskiye kharakteristiki magnitomyagkikh splavov v slabykh polyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 3, pp 324-328 (USSR)

ABSTRACT: The properties of the ferromagnetic in weak alternating fields are described by the complex magnetic permeability of the substance $\mu' = \mu - ip'$. If the permeability decreases more rapidly and if the loss angle tangent increases more rapidly than is the case in figure 1, it is normally assumed that these deviations are brought about by the magnetic dispersion of the substance. Some years ago it was shown experimentally (Ref 7 and 8) that in magnetically weak alloys actually a nonuniform distribution of magnetic properties takes place in the cross-section of the plate. This is mainly due to the reaction of the alloy with the insulating layer applied to the band in the production of the cores which takes place

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during the annealing. At present, a number of papers on the frequency dependence of magnetic permeability of the permalloy have been published (Refs 9 - 11). It appears from them that the decrease in permeability observed is always higher than might be expected from the effect of the eddy currents in a homogeneous plate. In order to determine the reason for this decrease samples of two alloys were accurately measured. From the results obtained completely opposite conclusions may be drawn on the occurrence of magnetic dispersion and its temperature dependence. It may be assumed that in those cases where the macroscopic homogeneity of the samples employed was not accurately examined the values of the dynamic parameter, which were computed according to experimental frequency characteristics may not be regarded as correct. Even the observation of the magnetic order may be regarded as debatable. There are 3 figures and 12 references, 8 of which are Soviet.

KONDORSKIY, Ye.I.

Theory of the stability of magnetic states in ferromagnetic substances during magnetization. Zhur.eksp.i teor.fiz. 37 no.4: 1110-1115 O '59. (MIRA 13:5)

1. Moskovskiy gosudarstvennyy universitet.
(Magnetism)

18.8000,18.8200,24.2200

77006
SOV/56-37-6-46/55

AUTHOR: Kondorskiy, E. I.

TITLE: Letter to the Editor. Causes of Peculiarities in the Physical Properties of Invar Alloys

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 6, pp 1819-1820 (USSR)

ABSTRACT: The physical properties of invar alloys have such properties as low coefficient of thermal expansion, large values for volume magnetostriction, and magnetic susceptibility in the region of saturation (cf., R. M. Bosort, Ferromagnetism, Publ. of Foreign Literature, Moscow, 1956). The explanation of these phenomena by U. Dehlinger (cf., Zs. Metallkunde, 28, 194, 1936) is not satisfactory. Dehlinger assumes that the energy of the exchange interaction among electrons of neighboring ions in such alloys is sharply varied during the expansion or compression of the crystal lattice). E. I. Kondorskiy and V. L. Sedov (cf.,

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Letter to the Editor. Causes of Peculiarities in the Physical Properties of Invar Alloys

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SOV/56-37-6-46/55

Zhur. eksp. i teoret. fiz., 35, 845, 1958) have shown that an alloy with face-centered lattice (73% Fe, 9% Ni, 18% Cr) is paramagnetic at room temperature and above, and at 40°K becomes antiferromagnetic. From this it follows that the exchange integral J_1 for neighboring ions of Fe in the face-centered lattice is negative. With an increase in the iron content up to 60%, the magnetic momentum of Fe-Ni alloys increases. From this it follows that $J_2 > 0$ and $J_{12} > 0$. Calculations show that in the crystal lattice of Fe-Ni alloy at random distributions of ions with antiparallel spins,

$$c_k = \frac{J_{12} - J_1 - \sqrt{J_{12}^2 - J_1 J_2}}{2J_{12} - J_1 - J_2}$$

WHERE

$$J_2 \approx J_{12} \approx -J_1,\ c_k \approx 0{,}3.$$

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Letter to the Editor. Causes of Peculiarities in the Physical Properties of Invar Alloys

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This means that the random distribution of ions with antiparallel spins is more probable at high temperatures than at low temperatures. Therefore, between completely ferromagnetic and antiferromagnetic alloys there should lie alloys in which part of the ions have antiparallel spins. Such a "hidden" antiferromagnetism should be present at concentration of Ni $c_2 < c_{20} = -J_1/(J_{12}-J_1)$ (where $J_1 \approx -I_{12}$, $c_{20} \approx 0.5$). The "hidden" antiferromagnetism is the main cause of the anomalies in the physical properties of invar alloys. There are 8 references, 5 Soviet, 2 German, 1 U.S. The U.S. reference is: T. S. Marsh, Alloys of Iron and Nickel, N.-J., 1938.

ASSOCIATION: Moscow State University, USSR (Moskovskiy gosudarstvennyy universitet, SSSR)

SUBMITTED: October 3, 1959

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Kondorskiy

2((0)) SOV/53-67-4-7/7

AUTHOR: Chentsov, R.

TITLE: The Fifth All-Union Conference on the Physics of Low Temperatures (5-ye Vsesoyuznoye soveshchaniye po fizike nizkikh temperatur)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 67, Nr 4, pp 743-750 (USSR)

ABSTRACT: This Conference took place from October 27 to November 1 at Tbilisi; it was organized by the Otdeleniye fiziko-matematicheskikh nauk Akademii nauk SSSR (Department of Physico-mathematical Sciences of the Academy of Sciences, USSR), the Akademiya nauk Gruzinskoy SSR (Academy of Sciences, Gruzinskaya SSR), and the Tbilisskiy gosudarstvennyy universitet im. Stalina (Tbilisi State University imeni Stalin). The Conference was attended by about 300 specialists from Tbilisi, Moscow, Khar'kov, Kiyev, Leningrad, Sverdlovsk, and other cities as well as by a number of young Chinese scientists at present working in the USSR. About 50 lectures were delivered which were divided according to research fields.

. IV. Magnetism. A. S. Borovik-Romanov (IFP) delivered a report on investigations he carried out of the anisotropy of the weak ferromagnetism in monocrystal samples of the antiferromagnetic $MnCO_3$ (the effect of anisotropy was predicted by the thermodynamical theory developed by Dzyaloshinskiy). In the course of the discussion R. A. Alikhanov (IFP) spoke about neutronographical investigations he carried out of the magnetic structure of $MnCO_3$ and $FeCO_3$ at low temperatures. P. L. Kapitsa stressed the importance of the method based upon Dzyaloshinskiy's theory. N. M. Kreynes (VNIIFTRI), whose lecture was read by A. S. Borovik-Romanov, reported on measurements carried out by him (in the IFP) of the magnetic anisotropy of the antiferromagnetic $CuSO_4$- and $CoSO_4$-monocrystals.

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Ye. A. Turov (IFM AN SSSR, Sverdlovsk) spoke about his theoretical investigations of the magnetizability, the susceptibility, the specific heat, and the resonance frequencies of antiferromagnetics and weak ferromagnetics. A. I. Sudovtsov and Ye. Ya. Semenenko (KhFTI) spoke about measurements of the electric resistance of iron in magnetic fields in a wide temperature range with simultaneous plotting of the magnetization curve. N. V. Vol'kenshteyn, G. V. Fedorov, E. V. Galoshina and M. I. Turchinskaya (IFM AN SSSR) spoke about measurements of magnetization and the Hall effect of polycrystalline samples, nickel and Ni_3Mn at low temperatures. Ye. I. Kondorskiy, V. Bode, U. Cofman and Cheng, Shou-ch'un (MGU) gave a report on susceptibility measurements on nickel and its alloys with copper at low temperatures; T. I. Sanadze (TGU) spoke about the spectrum of the paramagnetic resonance of Tb^{3+} in terbium nitrate at temperatures of liquid hydrogen. M. I. Kaganov and V. M. Tsukernik (KhFTI) dealt with the kinetic phenomena in ferromagnetics at low temperatures and with calculation of relaxation time; A. I. Akhiyezer, V. Bar'yakhtar and S. Peletminskiy (KhFTI) carried out a theoretical investigation of the relaxation of the magnetic moment in ferrodielectrics; Vlasov (IFM AN SSSR) showed that a linearly polarized elastic (ultrasonic) wave of a frequency of 10^9 cycles when passing through a ferromagnetic substance in the direction of the magnetic field, is subjected to a turn of the polarization plane of the order of 10^{-3} - 10^{-4} radian/cm oersted. M. I. Kaganov pointed out that in this connection yet another phenomenon may be observed, namely the resonance absorption of ultrasonics if the wavelength is equal to the radius of the Larmor orbit of the electron. . V. Various Questions. One of the most interesting lect...

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KONDORSKIY, Ye. I.

PHASE I BOOK EXPLOITATION SOV/4893

Vsesoyuznoye soveshchaniye po fizike, fiziko-khimicheskim svoystvam ferritov i fizicheskim osnovam ikh primeneniya. 3d, Minsk, 1959

Ferrity; fizicheskiye i fiziko-khimicheskiye svoystva. Doklady (Ferrites; Physical and Physicochemical Properties. Reports) Minsk, Izd-vo AN BSSR, 1960. 655 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: Nauchnyy sovet po magnetizmu AN SSSR. Otdel fiziki tverdogo tela i poluprovodnikov AN BSSR.

Editorial Board: Resp. Ed.: N. N. Sirota, Academician of the Academy of Sciences BSSR; K. P. Belov, Professor; Ye. I. Kondorskiy, Professor; K. M. Polivanov, Professor; R. V. Telesnin, Professor; G. A. Smolenskiy, Professor; N. N. Shol'ts, Candidate of Physical and Mathematical Sciences; K. M. Smolyarenko; and L. A. Bashkirov; Ed. of Publishing House: S. Kholyavskiy; Tech. Ed.: I. Volokhanovich.

PURPOSE: This book is intended for physicists, physical chemists, radio electronics engineers, and technical personnel engaged in the production and use of ferromagnetic materials. It may also be used by students in advanced courses in radio electronics, physics, and physical chemistry.

COVERAGE: The book contains reports presented at the Third All-Union Conference on Ferrites held in Minsk, Belorussian SSR. The reports deal with magnetic transformations, electrical and galvanomagnetic properties of ferrites, studies of the growth of ferrite single crystals, problems in the chemical and physicochemical analysis of ferrites, studies of ferrites having rectangular hysteresis loops and multicomponent ferrite systems exhibiting spontaneous rectangularity, problems in magnetic attraction, highly coercive ferrites, magnetic spectroscopy, ferromagnetic resonance, magneto-optics, physical principles of using ferrite components in electrical circuits, anisotropy of electrical and magnetic properties, etc. The Committee on Magnetism, AS USSR (S. V. Vonsovskiy, Chairman) organized the conference. References accompany individual articles.

Ferrites (Cont.) SOV/4893

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Kondorskiy, Ye. I.

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B006/B014

24.5600

AUTHORS: Kondorskiy, Ye. I., Galkina, O. S., Chernikova, L. A.

TITLE: The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 38, No. 2, pp. 646-648

TEXT: In a previous paper (Ref. 1) the authors have shown that in the case of nickel the ratio $\Delta\varrho/\Delta I$ ($\Delta\varrho$ - change in resistivity with a change of magnetization by ΔI due to a magnetic field in saturation range) is approximately equal to the ratio $(\varrho_T-\varrho_0)/(I_0-I_T)$. ϱ_T and I_T denote resistivity and/or saturation magnetization at $T < 20^\circ K$, ϱ_0 is the residual resistivity, and I_0 denotes saturation magnetization on extrapolation for the absolute zero. It was further assumed that $\varrho_T - \varrho_0 = aT^{3/2}$ (a - a proportionality factor) held for iron and nickel

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The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

at and below the temperature of liquid hydrogen and $\rho_T - \rho_0 - aT^{3/2} \sim T^5$ above the temperature of liquid hydrogen. The authors concluded that within the range of the temperatures of liquid hydrogen and helium the resistivity growth with rising temperature depends essentially on the resulting increase in non-homogeneity of the magnetic moments of the crystal lattice and, above the temperature of liquid hydrogen, on the amplification of thermal vibrations. Consequently, a maximum of resistivity may be expected in the range of Curie temperature where fluctuations of the magnetic order occur, especially if the Curie temperature is in the temperature range of liquid hydrogen. This possibility was first pointed out by M. A. Krivoglaz and S. A. Rybak. The existence of this maximum was experimentally proved by the writers of the present "Letter to the Editor". Samples of copper-nickel alloy (58 and 59.25% Cu) whose Curie points were below 20°K, were used for the purpose. The experimental technique is described in Ref. 1. The accompanying diagram shows resistivity as a function of temperature. The sample containing 59.25% of Cu, whose Curie point was near the temperature

The Maximum of Electrical Resistivity in Ferromagnetic Materials in the Curie Point at Low Temperatures

of liquid helium, had the most distinctly marked maximum. In the case of this alloy, the maximum of $\rho - \rho_0$ amounted to 0.7 per cent of ρ_0.

These maxima are flattened when a magnetic field is applied. Thus, the assumptions made in the preceding paper were confirmed. There are 1 figure and 2 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: October 27, 1959

Card 3/3

KONDORSKIY, Ye.I.; SEDOV, V.L.

Change of atomic magnetic moments of ferromagnetic metals under uniform compression. Zhur.eksp.i teor.fiz. 38 no.3:773-779 Mr '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet.
(Ferromagnetism)

KONDORSKIY, YE

USSR (cont.)

ALIKHANOV, R. A., Institute for Physical Problems imeni S. I. Vavilov, Academy of Sciences USSR, Moscow - "Neutronographic study of $NiCO_3$" (Section J-2)

BELOV, N. V., Associate Director, Institute of Crystallography, Academy of Sciences USSR, Moscow - "Magnetic (ferromagnetic) space group symmetry" (C-6)

BELOV, N. V., NERONOVA, N. N., Both Institute of Crystallography, Academy of Sciences USSR, Moscow, DONNAY, J. D. H., Johns Hopkins University, Baltimore, Md., and DONNAY, G. H., Geophysical Laboratory, Carnegie Institution, Washington, D. C. - "Tables of magnetic space groups, II. Special positions" (C-6)

BOROVIK-ROMANOV, A. S., Institute for Physical Problems imeni S. I. Vavilov, Academy of Sciences USSR - "Antiferromagnetic resonance in carbonated of transition elements" [sic] (M-16)

BOROVIK-ROMANOV, A. S., ALEKSANYAN, G. G., RUDASHEVSKIY, G. Ye. - "Piezomagnetic effect in antiferromagnets" (M-18)

KONDORSKIY, Ye. I., Head, Magnetism Laboratory, Moscow State University - (1) "The electrical and galvanomagnetic properties of thin films at very low temperatures" (M-5); (2) "On the connection between the spontaneous magnetization of current carriers and the Nernst-effect in ferromagnetic metals" (M-4); "The exchange interaction and magneto-effects in ferrimagnetics" (M-15)

LOBACHEV, B., and VAYNSHTEYN, B., Institute of Crystallography, Moscow - "Electron diffraction study of thiourea CO $(NH_2)_2$"

LYASHENKO, B. G., Central Scientific Research Institute of Metallurgy, Moscow - "The problem of the influence of spontaneous magnetization on crystal structure and phase state of alloys" (M-8)

LYASHENKO, B. G., LIVITIN, D. F., FUZEY, I.M., ADOV, Yu G. Central Scientific Research Institute of Metallurgy, Moscow - "Neutron diffraction investigation of order-disorder in the alloys 'Ferrum-nickel and ferrum-cobalt'" (J-1)

OZEROV, R. P., KOGAN, V. S., ZHDANOV, G. S., Scientific Research Physico-Chemical Institute imeni L. Ya. Karpov, Moscow - "Neutron diffraction study of the structure of solid hydrogen and deuterium" (C-8)

PINSKER, Z. G., Institute of Crystallography, Academy of Sciences USSR, Moscow - "Results and progresses of electron diffraction analysis" (C-11)

FUZEY, I. M., Scientific Research Institute of Metallurgy, Moscow - "Magnetic anistropy in monocrystals of Ni-Fe-Co alloys" (M-9)

SHUR, Yakov S., Scientific Research Institute of Metallurgy, Moscow - "Some problems of the physics of high coercive materials" (M-17)

SMOLENSKIY, G. A., Institute of Semiconductors, Leningrad - "Some investigations of non-metallic ferro and antiferromagnetics" (M-13)

VAYNSHTEYN, B. K., Institute of Crystallography, Academy of Sciences USSR - "Development of electron diffraction method" (C-11)

YAMZIN, I. I., BELOV, N. V., NOZIK, Y. Z., Institute of Crystallography, Moscow - "Atomic and magnetic structures of magnese ferrite" (J-2)

VONSOVSKIY, S. V., Institute of the Physics of Metals, Academy of Sciences USSR, Sverdlovsk. A member of the IUPAP Commission on Magnetism. See paragraph 1 of Comment for a complete listing of members of the Commission. "Some investigations of Soviet physics on the theory of ferromagnetism for the last years" (Invited paper. Section M-11)

paper to be submitted for the IUPAP Intl. Conference on Magnetism and Crystallography, Kyoto, Japan, 25-30 Sep 1961

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S/056/61/040/001/037/037
B102/B212

24.7900 (1147, 1158, 1160)

AUTHOR: Kondorskiy, Ye. I.

TITLE: Cause of Nernst effects in ferromagnetic metals

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 40, no. 1, 1961, 381-382

TEXT: In the present "Letter to the Editor" the relativistic effect related to the dislocation of current carriers with nonvanishing magnetization is discussed briefly. This effect should be taken into account in the theory of the Nernst effect in ferromagnetic metals. From the sign of the Nernst field the direction of the carrier magnetization with respect to the resulting spontaneous magnetization of the metal can be determined. At present the divisibility of magnetic moments in ferromagnetic metals is explained to the effect that the carriers posses a magnetization which is equal or opposite to the magnetization of the metal. A simple example is used to illustrate this problem; the carriers are assumed to be free electrons with a mean magnetization of $I_e = a_e I_z$, where a_e denotes a positive or negative

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Caus of Nernst effects in...

factor, and I_z is the magnetization. It is found that the Hall constant is the same as for the case where magnetization is due to bound electrons. The effect in question plays quite a role in the Nernst effect, where, due to electric polarization which is connected with the magnetization of the carriers, a field may appear which is larger than the general Nernst field. Any carriers traveling to the hot end of the metal have a larger magnetization than carriers traveling in the opposite direction. If a thermal current propagates along a conductor, not only energy is tranferred but also magnetic moment; an electric polarization occurs which produces a transversal electric field. If this contribution Q_{se} to the ferromagnetic Nernst constant is calculated that is due to this effect, one obtains: (1)

$$Q_{se} = \frac{2\tau(\eta)\eta a_e}{3cm^2 I_s} \frac{\partial I_s}{\partial T} 300 = \frac{Ka_e}{cC_o I_s} \frac{\partial I_s}{\partial T} 300 \left[v/deg.gauss. \right]$$

$\tau(\eta)$ denotes the relaxation time, η the Fermi energy, K the heat conductivity, C_o the electronic specific heat, I_s the spontaneous magnetization. For

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Cause of Nernst effects in...

temperatures near the Curie point and $|a_c| \geq 0.1$; $Q_{se} \gg Q_s'$, Q_s' being the ordinary Nernst constant. In the Nernst field there also occurs a component which is caused by spin-orbit interaction between carriers and ions. If this is considered in first approximation by means of the field $H_{eff} = H_{spo} I_e / I_s$, then a formula is obtained which differs from (1) by a positive factor only. Comparing experimental data for nickel and NiFe alloy shows that (1) describes well the temperature dependence of Q_s (from room temperature to the Curie point) and reproduces well the magnitude of Q_s. From (1) follows that Q_s will be positive regardless of the type of carriers if the magnetization of the carriers is directed against the spontaneous magnetization of the metal, but will be negative if they have the same direction. Therfore, the sign of the magnetization of current carriers can be determined from the sign of Q_s. Q_s is negative for iron and positive for Ni and Co. It follows that carrier magnetization is parallel in Fe and that in Ni

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24700 1136 1043 1144

AUTHORS: Galkina, O. S., Chernikova, L. A., Chang K'ai-ta Kondorskiy, Ye. I.

TITLE: Electric properties of thin nickel films at low temperatures

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6(12), 1961, 1763-1766

TEXT: The authors studied the electric and galvanomagnetic properties of highly pure nickel films of at least 30 Å thickness, and compared them with the corresponding properties of bulk specimens. The films were obtained by evaporation in vacuum (10^{-7} mm Hg) inside a balloon immersed in liquid helium. The temperature dependence of the electric resistivity was studied on films of 1300-30 Å thickness at temperatures of 2-300°K. It was shown that the resistivity ρ of films of 50 and 135 Å thickness was near the resistivity of bulk nickel. ρ sharply increases as the vacuum deteriorates. ρ of thick films grows to the 1.5-2 fold, that of thin films by about one order of magnitude. The temperature dependence of R_T/R_τ of annealed films of different thicknesses indicates the relative change

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Card 2/2

33339
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B102/B138

24.2200 (1144, 1147, 1164)

AUTHORS: Shakhov, V. I., and Kondorskiy, Ye. I.

TITLE: Domain boundary resonance and spin resonance in magnesium-nickel ferrites

PERIODICAL: Fizika tverdogo tela, v. 4, no. 1, 1962, 29 - 35

TEXT: The magnetic spectra of polycrystalline ferrites of the system $Mg_{1-x}Ni_xFe_2O_4$ were studied in the range from 10 to $3\cdot10^3$ Mcps. The powder compact specimens were single-phased (lattice constant 8.36 - 8.32 Å) and had an average grain size of $4\cdot10^{-4}$ cm. The density was 98 - 96% X-ray density. Saturation magnetization, I_s, Curie temperature, Θ_K, initial permeability, coercive force, magnetic anisotropy, K_1, magnetostriction, H_c, and resistivity, ρ, were measured, for $0 \leq x \leq 1$. All quantities increase with x, only H_c and ρ have a maximum. The h-f spectra were measured with coaxial lines as well as resonators; both methods yielded

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Domain boundary resonance and...

accordance with theory. Between these peaks the curve does not show any pecularities. The good agreement between f_d measured in the range 10^7-10^8 cps and calculated with Döring's formula (Zs. Naturforsch., 3a, 373, 1948) in dependence on NiO content shows that the μ_2 peaks are related to resonance effects in the migration of domain boundaries. In the range 10^9-10^{10} cps the measured f_s-values agree with those calculated using the relation $(f_s)_{max} = f_{os}\left[1 + \frac{s 4\pi I_s}{H_a}\right]^{1/2}$. This indicates that the μ_2 peaks in this range are due to spin resonance. There are 4 figures and 19 references: 9 Soviet and 10 non-Soviet. The four most recent references to English-language publications read as follows: E. A. Foulkner. J. Sci. Instr. 34, 514, 1957; P. A. Miles et al. Rev. Mod. Phys. 29, 279, 1957; I. Smit, H. Wijn, Adv. in Electr. a. Electr. Phys., 6, 91, 1954; G. T. Rado, Rev. Mod. Phys. 25, 81, 1953.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

KONDORSKIY, Ye.I.; SUSOV, Ye.V.

Apparatus for producing short-term high magnetic fields. Prib. i tekh. eksp. 8 no.1:125-130 Ja-F '63. (MIRA 16:5)
(Magnetic fields) (Electric apparatus and appliances)

KONDORSKIY, Ye.I.; VASIL'YEVA, R.P.

Degree of localization of magnetic electrons and the Nernst - Ettingshausen effect in ferromagnetic metals. Zhur. eksp. i teor. fiz. 45 no.3:401-403 S '63. (MIRA 16:10)

1. Moskovskiy gosudarstvennyy universitet.
(Ferromagnetism)

KONDORSKIY, Ye.I.

Theory of the Nernst- Ettingshausen effect in ferromagnetic metals. Zhur. eksp. i teor. fiz. 45 no.3:511-521 S '63. (MIRA 16:10)

1. Moskovskiy gosudarstvennyy universitet.
(Magnetic materials)

CHECHERNIKOV, Viktor Ivanovich; KONDORSKIY, Ye.I., prof., red.;
DOZORTSEVA, Ch.I., red.; CHISTYAKOVA, K.S., tekhn.red.

[Magnetic measurements] Magnitnye izmereniia. Pod red.
E.I.Kondorskogo. Moskva, Izd-vo Mosk. univ., 1963. 284 p.
(MIRA 17:3)

KOSTINA, T.I.; KOZLOVA, T.N.; KONDORSKIY, Ye.I.

Dependence of the electric and magnetic properties of chromium on the temperature and magnetic field strength. Zhur. eksp. i teor. fiz. 45 no.5:1352-1355 N '63. (MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet.

L 11449-65 EWT(l)/EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(b) Pad IJP(c)/SSD/APWL/
AS(mp)-2/ESD(t) JD/HW/AT

ACCESSION NR: AP4047864 S/0188/64/000/005/0072/0078

B

AUTHOR: Kondorskiy, Ye. I.; Vasil'yeva, R. P.; Mironova, L. S.

TITLE: Investigation of the temperature dependence of the Nernst-Ettinghouse effect and the electrical resistance of nickel-copper and iron-cobalt alloys

SOURCE: Moscow. Universitet. Vestnik. Seriya 3. Fizika, astronomiya, no. 5, 1964, 72-78

TOPIC TAGS: Nernst Ettinghouse effect, electrical resistance, magnetic moment, conduction electron, nickel copper alloy, iron cobalt alloy

ABSTRACT: The purpose of this work was to determine the contribution of the magnetic moments of conduction (non-localized) and localized electrons to the magnetic properties of nickel-copper and iron-cobalt alloys. It was found that in Ni-Cu alloys the influence of the magnetic moment of the conduction electrons is predominant, while in Fe-Co, its [illegible] depends on alloy composition. The method of separating the contribution of these two types of magnetic moments is based on the equation for the ferromagnetic Nernst-Ettinghouse Constant Q_s, i.e. $Q_s = -(\alpha + \beta\rho)T$, where ρ is the resistivity; T is

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ACCESSION NR: AP4047864

the absolute temperature; $\alpha \sim \beta(M_e - \sigma Mi)\frac{I}{I^2}$ 2 and $\beta \sim (M_e - \sigma M_i)\frac{I}{I^2}$; here, M_e is the magnetic moment of the conduction electron and σ is a coefficient close to unity. If Me > Mi α and β are positive and the contribution of the conduction electron is prevalent. If Me < Mi and β are negative, thus giving a relatively simple method for determining the type of magnetic moment. Nernst-Ettinghouse electromotive forces, magnetization and electrical resistance were measured as a function of temperature for varying compositions of Cu-Ni and Co-Fe alloys. The dependence of $\frac{E\ell}{\Delta Tb}$ (E is the N-E electromotive force, ℓ the distance between thermocouples and b the thickness of the sample) on magnetic field for various temperatures is shown graphically for Cu-Ni Co-Fe alloys. The temperature dependence of $\frac{E\ell}{\Delta Tb}$ for different alloy compositions is also shown. The values of Q_s for different alloy compositions of Fe-Co and Ni-Cu alloys are tabulated.

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ACCESSION NR: AP4047864

and plots of $\frac{Q_s}{T}$ vs. β' are given. It is seen from these plots that $M_e > \sigma M_i$, indicating that the parameter α is positive and the contribution of the magnetic moment of the conduction electrons predominates in Cu-Ni alloys; in Fe-Co alloys, the contribution of the conduction electrons varies with alloy composition. Orig. art. has: 9 figures, 2 tables and 3 formulas.

ASSOCIATION: Kafedra magnetizma Moskovskogo Universiteta (Department of Magnetism, Moscow University)

SUBMITTED: 31Nov63 ENCL: 00 SUB CODE: EM

NO REF SOV: 003 OTHER: 001

Card 3/3

KONDORSKIY, Ye.I.; VASIL'YEVA, R.P.; MIRONOVA, L.S.

Temperature dependence of the Nernst--Ettingshausen effect and electric resistance in nickel-copper and iron-cobalt alloys. Vest. Mosk. un. Ser.3:Fiz., astron. 19 no.4:72-78 S-O '64. (MIRA 17:12)

1. Kafedra magnetizma Moskovskogo universiteta.

KONDORSKIY, Ye.I.; CHEREMUSHKINA, A.V.; KURBANIYAZOV, N.

Hall effect in ferromagnetic metals and alloys. Fiz. tver. tela 6 no. 2:539-548 F '64. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

ACCESSION NR: AP4023398 S/0048/64/028/003/0507/0511

AUTHOR: Kondorskiy, Ye.I.

TITLE: The Nernst-Ettinghausen effect in ferromagnetic metals and the degree of localization of the magnetic electrons /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 507-511

TOPIC TAGS: Nernst-Ettinghausen effect, spontaneous Nernst-Ettinghausen effect, magnetic electron localization, magnetic anisotropy

ABSTRACT: The paper is an attempt to calculate the spontaneous Nernst-Ettinghausen field (the portion of the field that is proportional to the magnetization) by solving an approximate equation for the density matrix in the presence of a temperature gradient, and evaluating the mean value of the electron velocity normal to the temperature gradient under the condition that the electric current density vanish. The interaction of the electrons with impurities and phonons, and the spin-orbit coupling, are treated as perturbations, and the electric field and temperature gradient are switched on adiabatically (i.e., they are introduced as quantities increasing

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exponentially with time). The calculations were performed by methods described elsewhere by the author (Ye.I.Kondorskiy, Zhur.eksp.i teor.fiz.45,511,1963) and by J.M. Luttinger (Phys.Rev.112,739,1958), R.Karplus and J.M.Luttinger (Ibid.95,1154,1954) and Yu.P.Irkhin and V.G.Shavrov (Zhur.eksp.i teor.fiz.42,1233,1962). Intermediate results are given at various stages. The present calculations differ from those cited in that they include not only the coupling between the spin and the orbit of the same electron, but also that between the spin of one electron and the orbit of another. Although these two terms differ considerably in energy, they are found to make comparable contributions to the diagonal matrix element of the coordinate in the Bloch wave function representation, and so to the Nernst-Ettinghausen effect. As expression for the Nernst-Ettinghausen coefficient Q_s is finally obtained in the form $Q_s = -(\alpha + \beta\rho)T$, where T is the absolute temperature, ρ is the electric resistivity, and the quantities α and β (for which detailed expressions are given) are proportional to the component of $M_e - \sigma M_i$ in the direction of the magnetization. Here M_e (M_i) is the mean magnetic moment of those electrons that do (do not) contribute to charge transport, and σ is approximately the reciprocal of the charge of a lattice ion, expressed in terms of the elementary charge. The portion of the Nernst-Ettinghausen field due to scattering of electrons by magnetic non-uniformities was not taken into account. There is reason to suspect that this portion of

ACCESSION NR: AP4023398

the field may be appreciable, particularly near the Curie point. A future discussion of this question is promised. The magnetic anisotropy constant also depends on $M_0 - \sigma M_i$ and should therefore be small when 2 is small. This conclusion is supported by the behavior of alloys of the permalloy type. Orig.art.has: 24 formulas.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet (Moscow State University)

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 002 OTHER: 005

Card 3/3

ACCESSION NR: AP4023399 S/0048/64/028/003/0512/0518

AUTHOR: Kondorskiy, Ye.I.; Vasil'yeva, R.P.

TITLE: Degree of localization of magnetic electrons in ferromagnetic metals as indicated by exporimental investigation of the Nernst-Ettinghausen effect /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May-5 June 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 512-518

TOPIC TAGS: Nernst-Ettinghausen effect, spontaneous Nernst-Ettinghausen effect, magnetic electron localization, iron, cobalt, nickel, gadolinium, nickel copper alloy, iron cobalt alloy, iron nickel alloy

ABSTRACT: One of the authors (Ye.I.Kondorskiy, Zhur.eksp.i teor.fiz.45,511,1963) /see also Izv.Akad.nauk,Ser.fiz.28,No.3,507,1964; Abstract AP4023398/ has shown that in ferromagnetic materials the Nernst-Ettinghausen coefficient Q_s for the spontaneous field (i.e., the portion of the field that is proportional to the magnetization) is given by $Q_s = -(\alpha + \beta\rho)T$, where T is the absolute temperature, ρ is the electric resistivity, and the quantities α and β are both proportional to $M_s - \sigma M_i$.

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ACCESSION NR: AP4023399

Here M_0 (M_i) is the mean magnetic moment of those electrons that do (do not) participate in charge transport, and σ is approximately the reciprocal of the charge of a lattice ion expressed in terms of the elementary charge. From measurements of the Nernst-Ettinghausen effect, the quantities α and β can be obtained; and from these (particularly from their sign) conclusions can be drawn concerning the extent to which conduction (non-localized) electrons contribute to the magnetic properties of the material. The Nernst-Ettinghausen coefficients of Fe, Co, Ni, Gd and a series of Ni-Cu and Fe-Co alloys were measured at a number of temperatures. The experimental technique is described elsewhere (R.P.Ivanova (Vasil'yeva), Fiziks metallov i metallovedeniy 8,881,1958). The data thus obtained, together with similar data on Fe-Ni alloys previously obtained by R.P.Ivanova, are discussed in relation to the above theory. The theory is to this extent confirmed, that the plots of Q_s/T vs ρ are, with some exceptions, straight lines. The quantity α is positive for Fe, Co and Ni, indicating that in these metals the magnetic electrons contribute considerably to the conductivity. For Gd, α is negative at temperatures below 210°C, indicating that the 4f electrons responsible for the magnetization do not participate (or participate only slightly) in charge transport. At 210°C, at which temperature Gd is known to become antiferromagnetic in weak fields, the quantities α and β suddenly change sign. It is concluded that at this temperature the 5d and 6s electrons —

Card 2/3

Card

ACCESSION NR: AP4023403 S/0048/64/028/003/0537/0539

AUTHOR: Vinokurova, L.I.; Kondorskiy, Ye.I.

TITLE: Effect of hydrostatic pressure on the magnetization of rare earth metals /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 537-539

TOPIC TAGS: magnetization, rare earths, rare earth magnetization, magnetization pressure variation, pressure dependence of magnetization, gadolinium, dysprosium

ABSTRACT: The magnetization of Gd and Dy in fields from 2 to 16 kOe was measured at 78°K at pressures of 1800 and 5000 atm, and in addition, that of Gd was measured at 243°K and 2150 and 5000 atm. The measurements were undertaken to obtain information concerning the effect of lattice spacing on magnetization in materials in which the ferromagnetism is due to f electrons. Water and gallium were employed to transmit the pressure to the samples, and the pressure was determined by measuring the distortion of the beryllium bronze pressure vessel. The magnetization was measured by a compensation method using a photoelectric flux meter. The relative change ---

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ACCESSION NR: AP4023403

$\Delta\sigma/\sigma\Delta p$ of magnetization with pressure was calculated from the measured relative change of flux by subtracting one-third of the compressibility. The room temperature compressibility was used for Gd because low temperature data were not available. Saturation was reached in Gd at a field of somewhat less than 10 kOe at 78°K, and approximately at 16 kOe at 243°K. The values of $\Delta\sigma/\sigma\Delta p$ at saturation were independent of pressure. Saturation was not achieved in Dy, but an extrapolation suggests that here, too, $\Delta\sigma/\sigma\Delta p$ would probably be independent of pressure at saturation. The values obtained for $\Delta\sigma/\sigma\Delta p$ at 16 kOe are tabulated. The values of $\Delta\sigma/\sigma\Delta p$ obtained for Gd are said to be in reasonable agreement with values calculated from magnetostriction measurements by W.D.Corner and F.Hutchinson (Proc.Phys.Soc.75,485, 1960) and by R.M.Bozorth and T.Wakiyama (J.Phys.Soc.Japan,17,1669,1962). It is concluded that 1) the saturation magnetization of Gd and Dy decreases with increasing pressure; 2) the magnitude of the relative change of magnetization with pressure is approximately the same for Gd as for the metals of the iron group; 3) the relative change of magnetization with pressure is approximately the same for Dy as for the Invar alloys. It is suggested that the ferromagnetic-antiferromagnetic transition of Dy at 87°K may have something to do with the large values of $\Delta\sigma/\sigma\Delta p$ observed for t is metal at 78°K. Orig.art.has: 1 formula and 3 figures.

Card 2/2

ACCESSION NR: AP4025953 S/0056/64/046/003/1149/1150

AUTHOR: Vinokurova, L. I.; Kondorskiy, Ye. I.

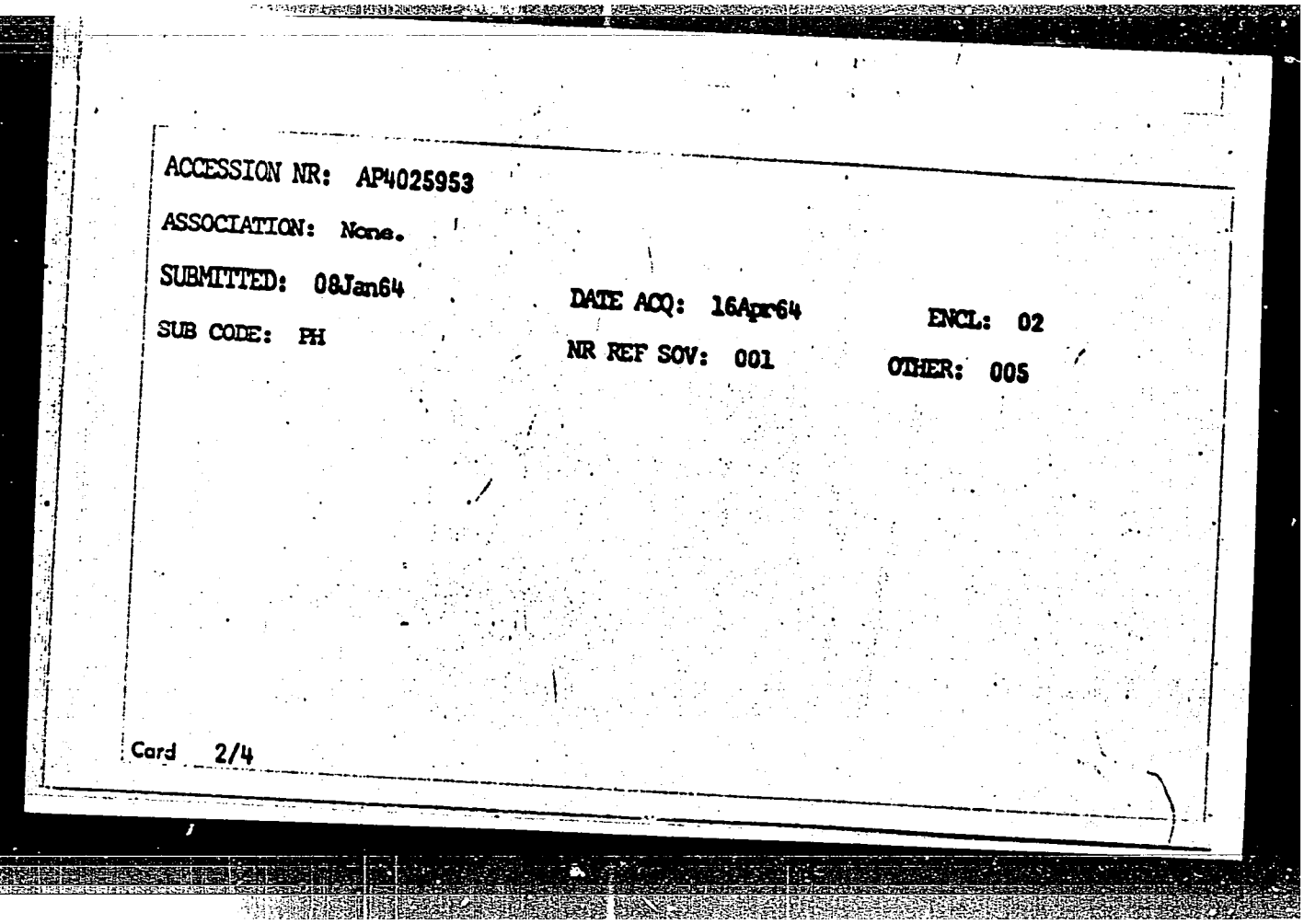
TITLE: Effect of hydrostatic compression on the magnetization of Ho and Er in the antiferromagnetic region

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 46, no. 3, 1964, 1149-1150

TOPIC TAGS: holmium, erbium, antiferromagnetism, hydrostatic compression, specific magnetization, compression dependence of magnetization

ABSTRACT: Measurements of the relative change of the specific magnetization following compression were made on polycrystalline samples of holmium and erbium in fields up to 17 kOe, using a measurement procedure and pressure-producing technique described earlier (paper presented at the Symposium on Ferromagnetism and Ferroelectricity, Leningrad, May, 1963). It follows from the results of the measurements that under the conditions of the experiment the magnetization of both metals decreases under uniform compression, with the ratio independent of H in the antiferromagnetic region but proportional to the pressure within the investigated limits. Orig. art. has: 2 figures.

Card 1/4



ACCESSION NR: AP4025953

ASSOCIATION: None.

SUBMITTED: 08Jan64 DATE ACQ: 16Apr64 ENCL: 02

SUB CODE: PH NR REF SOV: 001 OTHER: 005

Card 2/4

ACCESSION NR: AP4042572 S/0056/64/046/006/2085/2092

AUTHOR: Kondorskiy, Ye. I.

TITLE: Contribution to the theory of the Nernst-Ettingshausen phenomenon in ferromagnetic metals. II.

SOURCE: Zh. eksper. i teor. fiz., v. 46, no. 6, 1964, 2085-2092

TOPIC TAGS: ferromagnetism, Nernst Ettingshausen effect, current carrier, hole conduction, charged particle motion, magnetic moment, electron density

ABSTRACT: This article is a generalization of the previously proposed theory by the author (ZhETF v. 45, 511, 1963). Whereas in the preceding paper a simple case was considered, in which the principal carriers of the primary current, the heat flux, and the Nernst-Ettingshausen (NE) current were electrons and holes from one band, in the present article the theory is brought closer to the conditions

Card 1/3

ACCESSION NR: AP4042572

pertaining in a real metal. The existence of several bands filled to different degrees is taken into account. Attention is paid to additional terms in the expression for the density matrix, the appearance of which is connected with the necessity for satisfying boundary conditions on the chemical potential in a conductor with nonuniform electric charge density near the boundaries. Interband transitions during scattering of the electrons are taken into account to a greater degree. An expression is obtained for the density matrix of the system, in which the electric field is produced by the space charges which are replenished by an external electromotive force, in particular as a result of the presence of a temperature gradient. The more general theory confirms the deduction that from the sign of the first term in the formula for the NE constant one can ascertain which electrons, localized or unlocalized, are the principal carriers of the magnetic moment of ferromagnetic metals. A formula for the second term of the NE constant is derived by taking into account interband transitions in the electron scattering. Some

Card 2/3

ACCESSION NR: AP4042572

experimental data on the relations between the NE constants and the Hall constants are discussed briefly. Orig. art. has: 30 formulas.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet (Moscow State University)

SUBMITTED: 29Nov63 DATE ACQ: ENCL: 00

SUB CODE: GP NR REF SOV: 002 OTHER: 002

Card 3/3

KONDORSKIY, Ye. I.

"Quantum theory of transversal thermo- and galvano-magnetic effects in ferromagnetic metals."

report submitted for Intl Conf on Magnetism, Nottingham, UK, 6-13 Sep 64

State Univ of Moscow.

VINOKUROVA, L.I.; KONDORSKIY, Ye.I.

Effect of hydrostatic pressure on the magnetization of dysprosium and terbium. Zhur. eksp. i teor. fiz. 48 no.2: 429-436 F '65. (MIRA 18:11)

1. Moskovskiy gosudarstvennyy universitet.

L 39460-65 EWT(1)/EPA(s)-2 Pt-10 IJP(c) GG

ACCESSION NR: AP5006499 S/0056/65/048/002/0506/0513

[illegible]dinskiy, Ye. I.

TITLE: Role of electron scattering by phonons and magnetic innomogeneities in the Hall effect in ferromagnetic metals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 506-513

TOPIC TAGS: ferromagnet, electron scattering, electron phonon scattering, Hall effect, anomalous Hall constant, magnetic inhomogeneity scattering

ABSTRACT: This is a continuation of earlier studies by the author (ZhETF v. 45, [illegible] and v. 46, 2085, 1964; with A. V. [illegible]). A phenomenological [illegible] fields corresponding to the initial region of magnet[illegible] for [illegible]as are derived for the Hall [illegible] magnetization in a magnetic field. The anomalous Hall constant is [illegible] of electric [illegible] as the sum of the constants R_p and R_m which characterize the parts of the

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ACCESSION NR: AP5006499

anomalous Hall field corresponding to electron scattering by phonons and by magnetic impurities, respectively. A possible method is indicated for using experimental data to differentiate between R_p and R_m. The values obtained in this manner for nickel are commensurate in absolute magnitude but have opposite signs, with $R_p < 0$, $R_m > 0$, and $|R_p| > R_m$. Orig. art. has: 18 formulas and 2 tables.

AFFIL: Moskovskiy gosudarstvennyy universitet [illegible] State University

SUBMITTED: 30May64 ENCL: 00 SUB CODE: SS

NR REF SOV: 011 OTHER: 004

Card 2/2

L 07107-67 EWT(1) IJP(c) GG

ACC NR: AP6029099 SOURCE CODE: UR/0048/66/030/006/0921/0926

74
B

AUTHOR: Vedyayev, A.V.; Kondorskiy, Ye.I.;

ORG: Moscow State University im. M.V.Komonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Contribution to the quantum theory of the Kerr effect in ferromagnetic metals /Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 6, 1966, 921-926

TOPIC TAGS: ferromagnetism, Faraday effect, Kerr effect, electric conductivity, high frequency, quantum theory, photon, phonon interaction, theoretic physics

ABSTRACT: The authors employ Green's function techniques to calculate in the ladder approximation the high-frequency electrical conductivity tensor of a ferromagnetic metal, with interband transitions and the spin-orbit coupling of the magnetic electrons taken into account. The calculations are limited to the resonance case when the photon energy is close to the energy of an interband transition; thus only photon-induced interband transitions are taken into account. The final expression obtained for the conductivity tensor reduces in the appropriate limiting case to the result obtained by P.N.Argyres (Phys. Rev., 97, 334, (1955)) from quasiclassical considerations; the present work therefore provides a correct quantum statistical foundation for Argyres' result. The term proportional to the spin-orbit coupling in the part of the conduct-

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Card 2/2 407

KONDOV, Boian, arkh.

Glass plastics, building material with a great future. Tekh delo 13 no.431:2 16 Je '62.

KONDOV, B., arkh. [translator]

Concrete radiators. Tekh delo 13 no.428:3 26 My '62.

KONDOV, D., general-mayor.

Successes of the Bulgarian patriots. Voen.znan. 31 no.9:25 S '56.
(MLRA 9:11)

1. Zamestitel' predsedatelYa TSentral'nogo komiteta Dobrovol'nogo obshchestva sodeystviya oborone Bolgarii.
(Bulgaria--Military education)

KONDOV, Vl.

The Bulgarian Shipbuilding Industry Exhibition in Sofia.
Mashinostroene 13 no.1845-47 Ja'64.

KONDR, J.

Spare parts for machines of the food industry. p.20

PRUMYSL POTRAVIN. (Ministerstvo potravinarskeho prumyslu) Praha

Vol. 6, no. 1, 1955

East European Accessions List Vol. 5 No. 1 Jan. 1956

KONDR, J.

Automatic portioning scales. p.96

PRUMYSL POTRAVIN (Ministerstvo potravinarskeho prumyslu) Praha

Vol. 6, no. 2, 1955

East European Accessions List Vol. 5 No. 1 Jan. 1956

KONDR, J.

Food-industry machinery plants and their cooperation with the food industry. (To be contd.) p.67

PRUMYSL POTRAVIN. (Ministerstvo potravinarskeho prumyslu) Praha

Vol. 6, no. 2, 1955

East European Accessions List Vol. 5 No. 1 Jan. 1956

KONDR, J.

Food-industry machinery plants and their cooperation with the food industry. (to be contd.)

p. 120
Vol. 6, no. 3, 1955
PRUMYSL POTRAVIN
Praha

source; Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 3 March 1956

KONDR. J.

Some details of enameled steel containers. p. 405.

PRUMYSL POTRAVIN. Praha.

Vol. 6, no. 8, 1955.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March.1956.

KONDR, J.

Determination of the main trends in mechanization. p. 146. (PRUMYSL POTRAVIN, Vol. 7, No. 4, 1956, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

KONDR, J.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Application, Part 3. - Food Industry. H-28

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 48550

Author : Josef Kondr.
Inst : -
Title : Contimuous Sterilization in Bottles.

Orig Pub : Prumysl potravin, 1957, 8, No 5, 265-266

Abstract : Brief description of contimuously working sterilizers of milk in bottles. Drawings and schemes of a French, a Dutch and a Belgian company are presented. The Dutch company Stork created a contimuously working sterilizer of canned unsugared evaporated milk; this sterilizer is suitable for the sterilization of other alimentary products - meat, fish, vegetables, fruit - at 100 to 121°.

Card 1/1

COUNTRY : Czechoslovakia H-28
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 58812

AUTHOR : Kondr, J.
INST. : Not given
TITLE : The Application of Infrared Rays in the Food Industry

ORIG. PUB. : Prumysl Potravin, 9, No 5, 265-267 (1958)

ABSTRACT : The author reviews research trends and operating installations abroad.

T. Zvarova

CARD: 1/1

KONDR, J.

A few interesting food-processing machines at the World Fair in Brussels. p. 37

PRUMYSL POTRAVIN. (Ministerstvo potratinarskyho prumyslu) Praha, Czechoslovakia
Vol. 10, no. 1, Jan. 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 7, July 1959
Uncl.

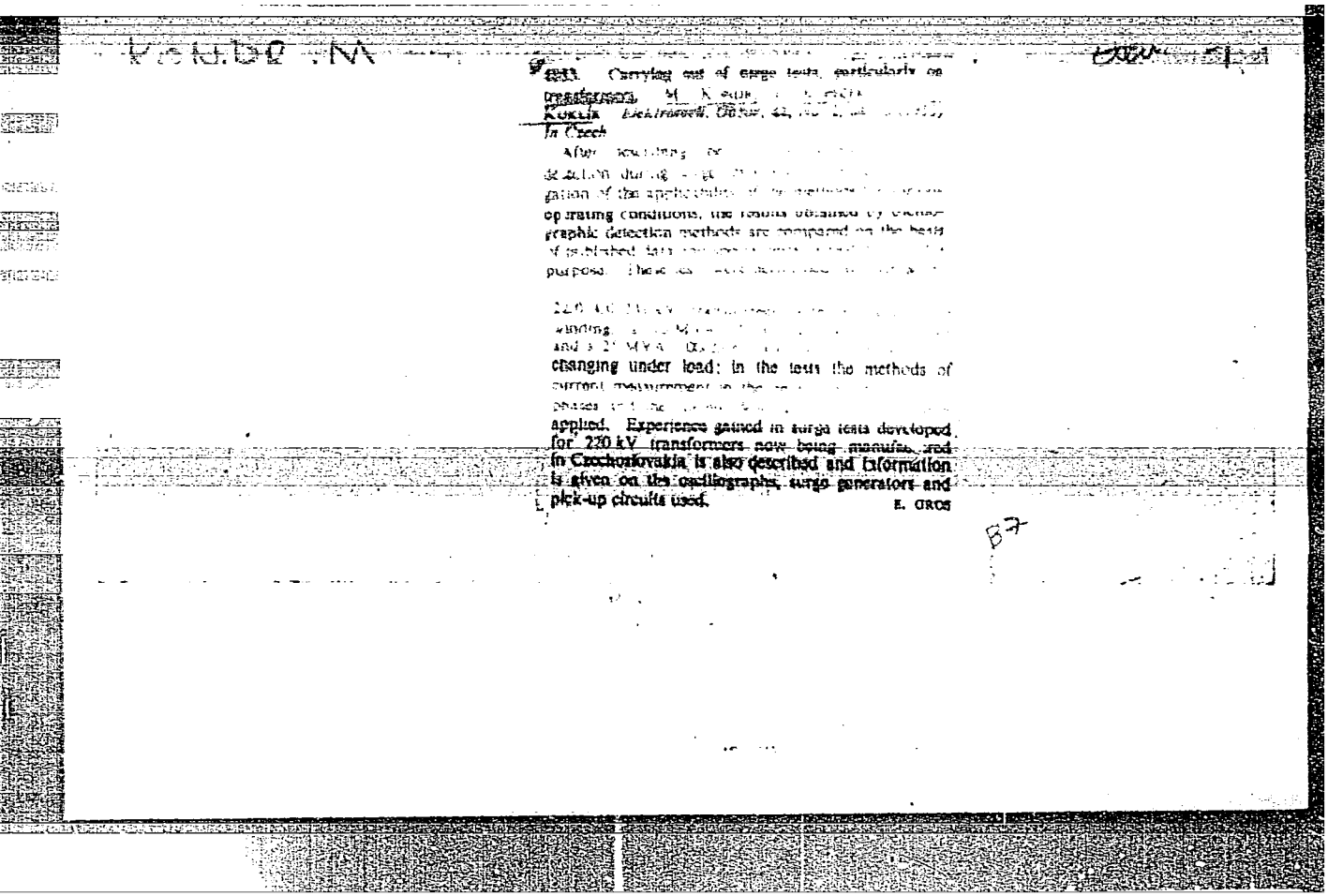
KONDRACKI, Jerzy, prof.dr. (Warszawa, Krakowskie Przedmiescie 30); KREMKY-SALONI, J., mgr.

Report from the activities of the Polish Geografical Society during 1959. Czasopismo geograficzne 32 no.1:103-107 '61.

1. Uniwersytet, Warszawa. Przewodniczacy Zarzadu Glownego Polskiego Towarzystwa Geograficznego, Warszawa. (for Kondracki). 2. Polskie Towarzystwo Geograficzne, Warszawa, Sekretarz Generalny (for Kremky-Saloni).

KONDR, Josef, inz. (Praha)

Studies of employed people helping production. Prum potravin 13 no.6:319-320 Je '62.



633. Carrying out of surge tests, particularly on transformers. M. K[illegible]
KOKLIA *Elektrotech. Obzor*, 42, [illegible] (In Czech)

After [illegible] gation of the applicability of [illegible] operating conditions, the results obtained by electrographic detection methods are compared on the basis of published data [illegible] purpose. [illegible]

[illegible] winding [illegible] and a 27 MVA [illegible] changing under load; in the tests the methods of current measurement in the [illegible] phases [illegible] applied. Experience gained in surge tests developed for 220 kV transformers now being manufactured in Czechoslovakia is also described and information is given on the oscillographs, surge generators and pick-up circuits used.

E. GROS

B7

KONDR, M.

Some applications of a series resonance circuit in high-voltage systems. p. 415. (ELEKTROTECHNICKY OBZOR, Vol. 46, No. 8, Aug 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

KONDR, M.

4.

PHASE I BOOK EXPLOITATION CZECH/4388

Bašta, Jan, Professor, Engineer, Doctor, Vojtěch Kulda, Engineer, Zdeněk Zoubek, Engineer, Jan Kopeček, Engineer, Zbyněk Vlášek, Engineer, Bedřich Fadersta, Engineer, Miroslav Kondr, Engineer, Miloš Frydl, and Jiří Kulda, Engineer

Měření na elektrických strojích. [sv.] 2: Měření na transformátorech (Measurements of Electric Machines. v.2: Measurements of Transformers) Prague, SNTL, 1959. 247 p. 2,700 copies printed.

Reviewer: Vladimír Hrbek, Engineer; Resp. Ed.: Ladislav Ženíšek, Engineer; Chief Ed.: František Kašpar, Engineer, Doctor; Tech. Ed.: Marie Králová.

PURPOSE: This book is intended for electrical engineers concerned with transformer problems.

COVERAGE: The book constitutes the second part of a collective work on measurements of electrical machines. It contains a list of preliminary operations in testing transformers and on measuring individual quantities: mechanical,

Card 1/15

electric, magnetic, and thermal. Testing procedures for special transformers, transducers, reactors, and shunt coils are also treated. The equipment used in test rooms, the testing methods, and the preparation of the results of measurements are described. Engineer Vojtěch Kulda wrote most of Chapters I, III, XVII, XIX, XXI, cooperated in writing Chapters II, VII, VIII, IX, XI, XII, XIV, XX, XXIV, and contributed to Chapters IV, V, VI, XV, and XVI. Engineer Zdeněk Zoubek wrote most of Chapters IV, V, VI, VII, IX, X, XXIII, cooperated in writing Chapters II, VIII, XI, XII, XXIV, and contributed to Chapters I and XVI. Professor Engineer Doctor Jan Bašta wrote most of Chapters XXII, XVI, XXII, cooperated in writing Chapters VIII, XII, XIV, XVII, and contributed to Chapters XV, XVIII and XX. Engineer Jan Kopeček wrote most of Chapters XV and XX, cooperated in writing Chapters VIII, XII, XIV and XVII, and contributed to Chapters I and XVI. Engineer Bedřich Fadersta cooperated in writing Chapter I and contributed to Chapters II, III, IV, VI, VII, VIII, IX, XII, XV, XVI, XIX and XX. Engineer Zbyněk Vlášek cooperated in writing Chapters I, XVII and XXIV, and contributed to Chapters IV, VIII and XXI. Engineer Miroslav Kondr cooperated in writing Chapters XIV and XV. Miloš Frydl wrote Chapter XVIII. Engineer Jiří Kulda cooperated in writing Chapter XIV and contributed to Chapter XV. The editors thank Engineer Doctor Jiří Lammeraner, Corresponding Member of the Czechoslovak Academy of Sciences and Engineer V. Hrbek. References follow each chapter.

Card 2/15

HAVEL, Jaroslav; KONDR, Miroslav

Equipment for pre ise operation of the refueling machine.
Jaderna energie 10 no.11:392-394 N '64.

1. Zavody V.I.Lenina National Enterprise, Plzen.

KONDR, R.

Food-industry machinery plants and their cooperation with the food industry.

p. 167
Vol. 6, no. 4, 1955
PRUMYSL POTRAVIN
Praha

So: Monthly List of East European Accessions (EEAL), LC, VOL. 5, no. 3
March 1956

KONDR, Vladimir

New safety technology on railroads. Zel dop tech 12 no.8:220 '64.

KONDR, Zdenek, inz.

Increasing the frequency of aircraft inspection and reducing the work involved in the repair of Czechoslovak Airline aircraft and the repair time. Letecky obzor 8 no. 6:168-169 Je '64.

SOV/143-59-1-9/17

9(9)

AUTHOR: Fedchenko, I.K., Doctor of Technical Sciences, Professor, and Kondra, B.N., Engineer

TITLE: Conditions for Modeling When Investigating Wave Characteristics of Electric Lines on Models (Usloviya modelirovaniya pri issledovanii volnovykh kharakteristik liniy na modelyakh)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1959, Nr 1, pp 56-64 (USSR)

ABSTRACT: A model is required to ensure a full similarity in physical processes to the full-size line. The geometrical similarity is indispensable; it covers such characteristics as the radii of the wires, the heights of their suspension and the distances between them. The scale of modeling may be chosen arbitrarily. The authors proceed to establish the relationships between the C, L, R, and z values of the model and the full-size line in case of their similarity. The r .tage to be applied to the model is found on the b .s of the ratio between the

Card 1/3

Conditions for Modeling When Investigating Wave Characteristics of Electric Lines on Models

critical voltages of the full-size line and the model. The wave shapes must be identical. Next, the authors give a definition of similarity of electrostatic fields and characterize the similarity in current distribution. The requirements of electrodynamic similarity cover the equality of the dielectric constants, magnetic permeabilities and conductivities of the respective media, the equality of the wave refraction and reflection indices, the similarity in the processes of the attenuation of electromagnetic waves. For perfect similarity, the length of consideration; but for studying the wave characteristics, the length of the model may be reduced to the length of the front of the wave, the reflection of the wave being prevented by adding, at the line end, an active resistance equal to the wave resistance of the line $R = z_{11}$. Experiments have proved that the described method ensures more accurate results when studying wave processes on laboratory models. There are 5 diagrams and 12 Soviet references.

Conditions for Modeling When Investigating Wave Characteristics of Electric Lines on Models

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev, Order of Lenin, Polytechnical Institute)

PRESENTED: By the Kafedra tekhniki vysokikh napryazheniy (Chair of High-Voltage Engineering)

SUBMITTED: November 24, 1958

27083
S/143/61/000/001/001/006
A207/A126

9,9881

AUTHORS: Fedchenko, I. K., Doctor of Technical Sciences, Kondra, B. N., Engineer

TITLE: An investigation carried out on the model line of wave-resistance change of a cable line at pulse corona

PERIODICAL: Energetika, no. 1, 1961, 1 - 10

TEXT: The present work deals with the problem of investigating the wave resistance of a line, depending on the multiplicity of the voltage on the cable line and on the front length of the pulse wave. An analytical solution of the problem on the change of the wave resistance in the line with pulse corona, due to the complexity of the processes, does not lend itself to accurate calculations, and does not exist at present. The analyses conducted on a standard line, where conditions of similarity are maintained, enabled the authors to determine the qualitative and quantitative characteristics of the process in the presence of a pulse corona in the cable line. An investigation of the pulse corona was conducted on a standard line. Observance of the electrostatic similarity was ensured by adopting the geometrical similarity as the necessary condition of the standard

Card 1/ 2

KONDRA, B.N., inzh.

Determination of the effect of impulse corona on the magnitude of coupling coefficients between the wires of high-voltage lines and grounding wires. Izv. vys. uchab. zav.; energ. 5 no.10:13-21 O '62. (MIRA 15:11)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut. Predstavlena kafedroy tekhniki vysokikh napryazheniy.
(Corona (Electricity))
(Electric lines--Overhead)

BUDNITSKIY, A.B.; VENIKOV, V.A.; GIZILA, Ye.P.; GREBEN', I.I.; IYERUSALIMOV, M.Ye.; KALNIBOLOTSKIY, M.L.; KONDRA, B.N.; LOYEV, Ye.G.; NESTERENKO, A.D.; PAVLOV, V.M.; POSTNIKOV, I.M.; POBEGAYLO, K.M.; RADCHENKO, L.A.; SVECHNIKOV, L.V.; SYROMYATNIKOV, I.A.; FEDOSEYEV, A.M.; FEDCHENKO, I.K.; KHODOROV, S.Ye.; CHIZHENKO, I.M.; TSUKERNIK, L.V.

Professor Vasilii Grigor'evich, 1904 -; on his 60th birthday. Elektrichestvo no.4:93-94 Ap '64. (MIRA 17:4)

GREBEN', I.I.; IYERUSALIMOV, M.Ye.; KONDRA, B.N.; NESTERENKO, A.D.; PAVLOV, V.M.; POSTNIKOV, I.M.; KHOLMSKIY, V.G.; CHIZHENKO, I.M.

Ivan Kirillovich Fedchenko, 1904-; on his 60th birthday and the 35th anniversary of his theoretical and educational work. Elektrichestvo no.10:87-88 O '64. (MIRA 17:12)

FEDCHENKO, I.K., doktor tekhn.nauk, prof.; KONDRA, B.N., kand.tekhn.nauk

Modeling of overhead power transmission lines in the study of pulse corona. Izv.vys.ucheb.zav.; energ. 8 no.9:124-129 S '65. (MIRA 18:10)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.

L 10230-66
ACC NR: AP6002411 SOURCE CODE: UR/0105/64/000/010/0087/0088

AUTHOR: Greben', I. I.; Iyerusalimov, M. Ye.; Kondra, B. N.; Nesterenko, A. D.; Pavlov, V. M.; Postnikov, I. M.; Kholmskiy, V. G.; Chuzhenko, I. M.

32
B

ORG: none

TITLE: Professor I. K. Fedchenko (60th birthday and 35th anniversary of his scientific and pedagogical activity)

SOURCE: Elektrichestvo, no. 10, 1964, 87-88

TOPIC TAGS: electric engineering personnel, electric engineering

ABSTRACT: September 26, 1964 was the 60th birthday of Ivan Kirilovich Fedchenko, Doctor of Technical Sciences and Professor in Charge of the Chair "Tekhnika vy*sokikh napryazheniy" (High-voltage engineering) at the Kiev, Order of Lenin, Polytechnical Institute. His entire career was spent at this institute. He successfully defended his dissertation in 1936 and became a reader (docent). He has published more than 60 scientific papers. Between 1934 and 1940 he set up production of domestic high-voltage capacitors. Much of his activity has been devoted to capacitor problems. After the war he worked on the problem of earth conductivity and use of earth as a return in power transmission. Fedchenko took his doctorate in 1951 defending a dissertation on earth as a conductor, which was

Card 1/2 UDC: 621.3.027.3

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L 10230-66

ACC NR: AP6002411

later published as the monograph "Teoriya zemlyanogo provoda" (Theory of earth as a conductor). He has worked extensively on insulations. His most recent work is on electric arcs. For his achievements Fedchenko holds two orders of the Red Banner of Labor, in addition to several military awards.
Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09 / SUBM DATE: none

Card 2/2

CHARVAT, Josef; GREGOROVA, Inge; KONDRAC, Michal

Value of the determination of urinary steroids in the differential diagnosis of hirsutism in women. Pol. arch. med. wewnet. 32 no.2: 183-187 '62.

1. Z Laboratorium Endokrynologicznego i Metabolicznego III Kliniki Chorob Wewnetrznych Universytetu Karola w Pradze Kierownik: prof. dr med. J. Charvat.

(HYPERTRICHOSIS urine) (VIRILISM urine)
(STEROIDS urine)

KONDRACHENKO, A.P., kand.tekhn.nauk, dotsent; TIMOFEYEV, V.N., inzhener.

Selecting an economically efficient plan of a stepped increase of the traffic capacity of railroads with the aid of electronic digital computers. Trudy MIIT no.181:21-42 '64.

(MIRA 18:1)

KONDRACHUK, V.Yu.

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