"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

ACCESSION NR. AP4031171

the magnetic moment are available for low-temperature thin layers. Orig. art. has 20 formulas.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physical Problems, Academy of Sciences SSSR).

SUBMITTED: 13Nov63 DATE ACQ: 07May64 ENCL: 00

SUB CODE: PH NO REF SOV: 006 OTHER 002

Card 2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

ABRIKOSOV, A.A., doktor fiz.-matem. nauk

Physics of superconducting alloys. Priroda 53 no.5:26-33 '64. (MIRA 17:5)

1. Institut fizicheskikh problem AN SSSR, Moskva.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

NR: AT5000432 C[illegible]11/001[illegible]

Abrikosov, A. A.

TITLE: Review of the theory of superconducting alloys

Conference on Low Temperature Physics and Techniques.

[illegible] Conference, [illegible] Dobl. House of the Czechosl. of Sciences, 1964, [illegible]

TOPIC TAGS: superconductivity, superconducting alloy, London super- [illegible] critical current, critical field

ABSTRACT: The author shows that according to the modern theory of superconductivity, the electrons and superconductors are coupled [illegible] with finite dimensions (10^{-4} -- [illegible]). The finite pair dimension leads to space correlation of the electron motion, so that electrodynamics of superconductors is nonlocal. This necessitates rewriting of the old London equations and leads to an explanation of

Card 1/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

[illegible]
[illegible] NR: [illegible]

[illegible] positive and negative [illegible] respectively, the

[illegible] formulas

ASSOCIATION: Institut fizicheskikh problem AN SSSR (Institute for Physical Problems, Academy of Sciences, SSSR)

SUBMITTED: 0064 ENC: 00 SUB CODE: SS

NR REF SOV: 000 OTHER: 000

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

[illegible] EWT(1)/EWG(1)/T/EWA(1) Pe [illegible] AS(mp)-2/SSD/
[illegible] ESSION NR: AP4043651 [illegible] S/0056/64/047/002/0720/0733
AT

[illegible] Abrikosov, A. A.

TITLE: Concerning surface superconductivity in strong magnetic fields

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 8, 1964, 720-733

TOPIC TAGS: superconductivity, critical field, critical temperature, thin film

ABSTRACT: The possible existence of a thin superconducting layer near the surface of a superconductor in a field stronger than the critical field H_{c2}, reported and discussed by D. Saint James and [illegible] (Phys. Lett., v. [illegible] 306, 1963) is analyzed further both theoretically and in light of some recent experimental data. Additional analytic proof is presented for the existence of surface superconductivity beyond the region of applicability of the Ginzburg

Card 1/3

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 14030-65
ACCESSION NR: AP4043651

and Landau equations and the existence of a higher field H_{c3} at which the superconductivity disappears. This superconductivity is shown to occur at all temperatures below critical. A check is made on the Saint-James' and Gennes' conclusion that surface conductivity causes the value of the critical field determined from the vanishing of the magnetic moment, to disagree with the value corresponding to [illegible] evaluates the critical field of thin films of superconductors of the second group in a parallel field and of the critical current for surface conductivity of a bulk sample [illegible] field [illegible] available experimental data leads to the conclusion that there is still no clear-cut experimental confirmation of surface conductivity, and that new, more thorough experiments are needed. Orig. art. has: 3 figures and 39 formulas.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physics Problems, Academy of Sciences SSSR)

Card 2/3

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 14030-65
ACCESSION NR: AP4043651

0

SUBMITTED: 15Mar64 ENCL: 00

SUB CODE: GP, EC NO REF SOV: 008 OTHER: 004

Card 3/3

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 53612-65 EWT(1)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(b)/EWA(h) Pz-6/Peb
ACCESSION NR: AP5013675 IJP(c) JD/AT UR/0386/65/001/001/0053/0059

AUTHOR: Abrikosov, A. A.

TITLE: Electric resistivity of metals with low magnetic impurity in the presence of impurity ferromagnetism and an external magnetic field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 1, 1965, 53-59

TOPIC TAGS: metal, resistivity, magnetoresistance, impurity ferromagnetism

ABSTRACT: Continuing earlier calculations of the electric resistivity of a nonmagnetic metal with small admixture of magnetic atoms (ZhETF v. 48, 990, 1965), the author considers the case of impurity ferromagnetism and determines the dependence of the resistivity on an external magnetic field. The spin diagram technique of the earlier paper is used, and the calculation was made with logarithmic accuracy. The effects of the field on the exchange resistivity and on the ordinary resistivity are determined separately. An estimate shows that in the presence of an external field a decrease in the exchange resistivity, due to the ferromagnetic ordering, is much larger than the increase in the ordinary resistivity due to the appearance

Card 1/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 53612-65

ACCESSION NR: AP5013675

[illegible] magnetic field. The [illegible] vity [illegible]

[illegible] figures and [illegible] formulas.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 0 SUB CODE: EM, MM

[illegible]

Card 2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 42987-65 EWT(1)/EWP(m)/EPF(n)-2/EWA(d) Pd-1/Pu-4 IJP(c) WW/GG
ACCESSION NR: AP5006535 S/0056/65/048/002/0765/0767

AUTHOR: Abrikosov, A. A.; Kemoklidze, M. P.; Khalatnikov, I. M.

TITLE: Hydrodynamic theory of collective eddy oscillations in superconductors of the second type

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 2, 1965, 765-767

TOPIC TAGS: [illegible] oscillation, superconductivity

ABSTRACT: Collective eddy oscillations in superconductors of the second type are investigated for the case $\chi > 1$. In these conditions the parameter of superconducting correlation $\xi = \delta/\chi$ is small in comparison to the field penetration depth. A formula $\omega = (\pm 1 - i\alpha)\Omega_0\delta^2k^2/(1 + \delta^2k^2)$, is derived for circularly polarized eddy waves. The relaxation time of eddy oscillations is expressed by $\tau = R^2/5{,}8\alpha\delta^2\Omega_0$, where R is the magnetized cylinder radius; α is the dissipation factor; δ is the skin depth; $\Omega_0 = eH/mc$. Comparison with the results of others indicates that

Card 1/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

[illegible]

ASSOCIATION: [illegible]

SUBMITTED: [illegible] ENCL: 00 SUB CODE: ID, EM

NO REF SOV: 002 OTHER: 002

Card 2/2 JO

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

ACCESSION NR: AP5000186 S/0056/65/048/003/0990/0992

AUTHOR: Abrikosov, A. A.

TITLE: Resistance as a function of temperature in nonmagnetic metals with impurities of paramagnetic atoms

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 3, 1965, 990-992

TOPIC TAGS: magnetic impurity, magnetic effect, nonmagnetic metal, resistivity, electron scattering, impurity conductivity

ABSTRACT: The increase in electrical resistance with reduction in temperature in nonmagnetic metals with trace impurities of paramagnetic atoms is discussed. The impurity component of the resistance is calculated. A temperature diagram for two fermion fields is derived where the interaction Hamiltonian is:

$$H_{int} = -(J/N) \sum_{n} \psi_{\alpha}^{+}(r_n)\sigma_{\alpha\beta}\psi_{\beta}(r_n)\, S(r_n)$$

Card 1/3

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 64114-65

ACCESSION NR: AP5008766

$$\rho_{M0} = \left(1 + \frac{\ln}{2\varepsilon_F} \ln \frac{}{T}\right) \qquad (2)$$

$$\rho_{M0} = \frac{3\pi m J_0 S(S+1)c}{2N\varepsilon_F e^2 h}$$

where [illegible] is the amplitude of the free [illegible] scattering. This

[illegible] infinite. A more detailed [illegible] amplitude of the

Card [illegible]

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 64114-65

ACCESSION NR: AP5008766

2

mains finite due to the finite resonance width. While ρ_M could not be calculated exactly in the neighborhood of the maximum, it was found that

$$\rho_M \, max \sim \rho_{M0}(\varepsilon_r / J_1)^2.$$

The details of these calculations will be published later. "I take this opportunity to thank I. Ye. Dzyaloshinskiy for consultation." Orig. art. has: 4 formulas. [14]

cal Problems, Academy of Sciences, SSSR)

SUBMITTED: 15Jan65 ENCL: 00 SUB CODE: EM, MM

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 55021-65 EWT(1) IJP(c) GG

ACCESSION NR: AP5012189 UR/0030/65/000/004/0017/0029

AUTHOR: Abrikosov, A. A. (Corresponding member AN SSSR)

TITLE: The problem of superconduction

SOURCE: AN SSSR. Vestnik, no. 4, 1965, 17-29

TOPIC TAGS: superconductor, superconductivity, magnetic strength, surface phenomenon, temperature effect

ABSTRACT: The history of the study of superconduction from its discovery in 1911 by Kammerling Onnes to the present is related. In addition to discovering the phenomenon, Onnes in 1914 established some effects of [illegible] and temperature variations on superconduction. The experimental and theoretical work of V. Meissner, R. Oxenfeld, DeHaas, and D. Shenberg in the 1930's revealed that superconduction exists at the surface of a superconductive material where a separation of internal and external magnetic fields [illegible] the efforts of many physicists from various nations [illegible]

[illegible]

Card 1/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 55021-65

ACCESSION NR: AP5012189

According to this theory, under superconduction conditions there arises an interaction between electrons in the lattice. The interactior produces attracting forces that surpass the electrostatic repulsion forces. The discontinuity in the energy spectrum at the critical temperature is demonstrated by [illegible]

[illegible] plots of magnetic penetration of superconductor masses. The recent advances in creating superconductive films are reviewed. [illegible] 19 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 [illegible]

Card 2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 3969-66 EWT(1)/EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) IJP(c) JD

ACC NR: AP5024198

UR/0053/65/087/001/0125/0142
37.312.62

AUTHOR: Abrikosov, A. A. 55,44

21,44,55

43
B

TITLE: Present state of superconductivity problems

SOURCE: Uspekhi fizicheskikh nauk, v. 87, no. 1, 1965, 125-142

TOPIC TAGS: superconductivity, superconductor, mixed state, quantum vortex

ABSTRACT: This review article describes superconductivity studies ranging from the discovery of the phenomenon by Kamerlingh Onnes to recent ideas on the possibility of producing materials which would remain in the superconducting state at room temperature. The discovery of the isotope effect by Allen and Maxwell in 1950, followed by the Frohlich-Bardeen concept of an attractive interaction between electrons, are cited as the first step which led to a full explanation of superconductivity in the form of the Bardeen-Cooper-Schrieffer and Bogolyubov theories. The basic formulas of these theories, such as the coupling energy, critical temperature, and temperature dependence of the critical field, are listed and briefly explained. The problem of surface energy, termed as basic to the understanding of the phenomenon, is discussed in greater detail, and it is shown how investigations of surface energy led to Abrikosov's postulate that two kinds of superconductors exist in nature. Much of the article is devoted to an outline of the theory of second-kind superconductivity, as proposed by

Card 1/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

L 3969-66

ACC NR: AP5024198

Abrikosov in 1957 and further developed by Gor'kov and other Soviet and Western students of the mixed state. The present-day use of superconductors for the production of strong magnetic fields and in memory devices in computer networks is briefly mentioned, and further practical applications are predicted. Such applications will perhaps be related to recent demonstrations of the possibility of the coexistence of the superconducting and ferromagnetic phases. Though the present simplified model appears to restrict the critical temperatures to beneath 40K, Abrikosov does not exclude the possibility that other mechanisms of electron attraction will be discovered, which will make the use of very low temperatures unnecessary. Orig. art. has: 19 formulas and 17 figures. [ZL]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SS

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4118

Card 2/2

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

ABRIKOSOV, A.A.

Characteristics of the temperature dependence of normagnetic metals with a small admixture of magnetic atoms. Zhur. eksp. i teor. fiz. 48 no.3.990-992 Mr '65. (MIRA 18:6)

1. Institut fizicheskikh problem AN SSSR.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

ABRIKOSOV, A.A.; KEMOKLIDZE, M.P.; KHALATNIKOV, I.M.

Hydrodynamic theory of collective oscillations of vortices in superconductors of the second kind. Zhur. eksp. i teor. fiz. 48 no.2:765-767 F '65. (MIRA 18:11)

1. Ob"yedinennyy institut yadernykh issledovaniy.

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

ABRIKOSOV, Aleksey Alekseyevich

[Academician L.D.Landau; a short biography and review of his scientific works] Akademik L.D.Landau; kratkaia biografiia i obzor nauchnykh rabot. Moskva, Nauka, 1965. 46 p. (MIRA 18:8)

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"

"APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8

APPROVED FOR RELEASE: 03/20/2001 CIA-RDP86-00513R000100220017-8"