Gd - Au

Gd Al, Gd Cu, Gd Rh, Gd Ag, Gd Au
(крист. стр-ра)

1965
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Мл

РЖХ 1965 12 9143

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(кристалл. стр-ра)

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РЖ, 1968, 1К2161

MAu_2; MAu_5 (M = Gd, Tb, Dy, Ho, Er, Tu, Yb) $ErAu_4$; $YbAu_4$ VIII-217 1968

Крист. стр-ра

Sadagopan V., Giessen B.C., Grant N.J., J. Less Common Metals, 1968, 14, N3, 279-290

РЖ 1968

Ми

VIII LuAu$_2$, LuAu$_4$, 1968

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Sadiogopan V., Giessen B.C., Grant N.J., J. Less-Common Metals, 1968, 40, 279-290.

(90) Me

РЖХим, 18Б455(1968)

La Au, Ce Au, Pr Au, Nd Au, 1971
Sm Au, Gd Au, Tb Au, Dy Au,
Ho Au, Er Au, Tm Au, Lu Au (Tm)

VIII 5145

Mc Master O.D., Gschneidner K.A., Bruzzone G., Palenzona A.,

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CA71

A1 (φ)

GdAu2

1973

9 E1484. Магнитные свойства некоторых соединений редкоземельных металлов с золотом. Sill L. R., Snow S. R., Fedro A. J. Magnetic properties of some rare-earth gold compounds. «Magn. and Magnetic Mater. 18th Annu. Conf., Denver, Colo, 1972. Part 2». New York, 1973, 1060—1064 (англ.)

T_N

В области т-р 2,5—300° К в полях $H \leqslant 26$ кэ измерена магн. восприимчивость соединений RAu_2, где R = Gd-Tb, Dy, Ho, Er или Tu. Все составы обладали объемноцентрир. тетраг. структурой типа $MoSi_2$. Кривые зависимости обратной восприимчивости от т-ры для всех соединений, исключая $GdAu_2$, значительно отклоняются от линейности после т-ры перехода. Эффективные магн. моменты $\mu_{эф}$ были определены экстраполяцией и приведены в таблице, где также даны значения т-ры Нееля T_{N_α} для всех составов, а для $TbAu_2$ и $DyAu_2$

ф. 1973 N 9

(+5)

даны т-ры перехода T_{N_β}, наблюдаемого ниже T_{N_α}. Появление T_{N_β} обусловлено тем, что ниже этой т-ры существует фазовое состояние, вызванное действием поля анизотропии кристаллов.

RAu_2	T_{N_α}, °K	T_{N_β}, °K	$\mu_{эф}$, μ_B
$GdAu_2$	48	—	8,38
$TbAu_2$	55	42,5	9,83
$DyAu_2$	32	24	10,52
$HoAu_2$	9	—	10,97
$ErAu_2$	6	—	9,45
$TuAu_2$	3,5		7,62

XVIII-366 1975

$CeAu_2Si_2$; $SmAu_2Si_2$; $GdAu_2Si_2$; $TbAu_2Si_2$; $DyAu_2Si_2$; $EuAu_2Si_2$; $HoAu_2Si_2$; $ErAu_2Si_2$ (Tt;

Felner I.

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Б, Мн

$Gd_{80}Au_{20}$

$Gd_{68}Ni_{32}$

$Gd_{67}Co_{33}$

Tt2

1977

87: 160852d **Magnetic and transport properties of amorphous ferromagnetic gadolinium-gold, gadolinium-nickel and gadolinium-cobalt alloys obtained by splat-cooling.** Durand, J.; Poon, S. J. (W. M. Keck Lab. Eng. Mater., California Inst. Technol., Pasadena, Calif.). *IEEE Trans. Magn.* 1977, MAG-13(5), 1556-8 (Eng). The results of magnetization and transport measurements on amorphous $Gd_{80}Au_{20}$, $Gd_{68}Ni_{32}$ and $Gd_{67}Co_{33}$ alloys over temp. range of 1.8-300 K in fields up to 75 kOe are described. These ferromagnetic alloys obtained by splat-cooling have Curie temp. T_c of 150, 125 and 175° K, resp. The satn. moment per Gd atom extrapolated to 0 K is estd. to be 7 ± 0.1 μb. The exchange integrals for Gd-Au and Gd-Ni are detd. from the value of T_c and from the temp. dependence of the satn. magnetization. The zero-field resistivity for Gd-Ni and Gd-Co exhibits max. near T_c. Some preliminary results of magnetoresistivity measurements with applied field parallel and perpendicular to the foil plane are discussed. The anisotropy is in-plane for Gd-Co. For the Gd-Au and Gd-Ni alloys, there is no well-defined easy axis.

C.A. 1977, 87 №20

1977

Gd80Au20

Gd68Ni32

Tcurie

88: 129942c **Magnetic and transport properties of amorphous ferromagnetic gadolinium-gold and gadolinium-nickel alloys obtained by splat-cooling.** Durand, J.; Poon, S. J. (W. M. Keck Lab. Eng. Mater., California Inst. Technol., Pasadena, Calif.). *Dig. Intermag Conf.* 1977, 30-10 (Eng). The magnetic properties of the amorphous alloys $Gd_{80}Au_{20}$ and $Gd_{68}Ni_{32}$ obtained by splat cooling are reported. The Curie temps. are 150 and 125 for $Gd_{80}Au_{20}$ and $Gd_{68}Au_{32}$, resp. The effective moments are ~25% higher than the ionic values. The transverse magnetoresistance is neg. for both alloys. The satn. magnetization of the alloys was compared with that calcd. from the spin wave theory.

C.A, 1978, 88, N18

$Gd_{80}Au_{20}$ 1977

87: 110552k Critical phenomena and magnetic properties of an amorphous ferromagnet: gadolinium-gold. Poon, S. J.; Durand, J. (W. M. Keck Lab. Eng. Mater., California Inst. Technol., Pasadena, Calif.). *Phys. Rev. B* 1977, 16(1), 316-30 (Eng). Magnetization was measured between 4.2 and 290 K in fields ≤70 kOe on liq.-quenched $Gd_{80}Au_{20}$ amorphous alloys. The Curie temp. and crit. exponents β, γ, and δ are 149.45 ± 0.02 K, 0.44 ± 0.02, 1.29 ± 0.05, and 3.96 ± 0.03, resp. The data are fitted to an equation of state previously derived for a 2nd-order phase transition in fluid systems. The magnetization exponent β of amorphous ferromagnets studied so far has a value ~0.4, slightly enhanced over those obsd. in corresponding cryst. elements, and the estd. sp.-heat exponent α is neg. Both agree qual. with theories on the crit. behavior of random systems. The effects of structural disorder on the magnetic properties studied are compared and discussed with recent theories on amorphous magnetism. A comparison of the magnetization data with Handrich's theory for amorphous ferromagnets suggests that in

Tcurie

C.A. 1977. 87 № 14

these amorphous alloys the av. fluctuation in the exchange const. (J) can be an appreciable fraction of J itself. The effective magnetic moment in the paramagnetic state has a value of (8.9 ± 0.1) μB per Gd atom. The satn. moment extrapolated to 0 K equals (7.0 ± 0.25)μB per Gd atom. The low-temp. satn. magnetization follows the $T^{3/2}$ law from 0.13 T_c to 0.80 T_c. The mean exchange integrals J detd. from the Rushbrooke-Wood formula and spinwave theory are found to be 2.28 ± 0.15 K and 1.34 ± 0.08 K, resp. The exchange const. of the Ruderman-Kettel-Kasuya-Yosida interaction as estd. from the de Gennes model (J_{sf} ≃0.19 eV) is not drastically reduced in this amorphous matrix. Finally, the Curie temp. of pure amorphous Gd is estd. and its value compared with those obtained from exptl. extrapolation.

1978

$GdAu_{3,6}$ Ikonomou P.F., et al

J. Less-Common Met.

T_{curie} 1978, 59(1), 51-56

($CuPrAu_{3,6}$; I)

Au-Gd (расплав) 1993

Ivanov M. I.

(ΔHmix) J. Alloys Compd. 1993, 200 (1-2), 177-80.

(См. Pd-La (расплав); I)

Gd Aube 1996

Gibson B. J., et al.,

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46, 2573-74.

(Cp, Tn)

(cm. Ce Aube; I)

Au-Gd 1997

(GdAu_x)

Fitzner K., Kleppa O.J.;

термохим. Metall. Mater. Trans. A 1997, <u>28A</u> (1), 187-190

(см. Cu-Gd; I)

GdAu

2001

Ferro R. et al.,

J. Alloys Compd. 2001, 321 (2), 248-60

$\Delta_f H^0$

эксп

300K

(см. La Au; I)