GORYUNOVA, N.A.; RADAUTSAN, S.I.; KIOSSE, G.A.

New semiconductor compound in the system In - Sb - Te. Fiz. tver.tela 1 no.12:1858-1860 D '59. (MIRA 13:5)

1. Moldavskiy filial AN SSSR.
(Indium-antimony-tellurium alloys--Electric properties)
(Semiconductors)

SOV/78-4-5-29/46

18(6)

AUTHOR: Radautsan, S. I.

TITLE: Investigation of the Section of $InAs-In_2Se_3$ in the System In-As-Se (Issledovaniye razreza $InAs-In_2Se_3$ sistemy In-As-Se)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 5, pp 1121-1124 (USSR)

ABSTRACT: The structure of the alloy of the $InAs-In_2Se_3$ section was thermally investigated by means of the metal microscope MIM-6. Microhardness was measured by means of the hardness gauge PMT-3, and thermal analysis was carried out by means of the pyrometer developed by N. S. Kurnakov according to the differential method. Radiostructural and microstructural investigation show that in the section $InAs-InSe$ a formation of solid solutions is improbable. The phase diagram of the system $InAs-In_2Se_3$ was constructed and is shown by figure 2. The beginning and the end of the process of hardening the alloy are characterized by the occurrence of $9InAs.In_2Se_3$ and $2InAs.3In_2Se_3$. The micro ground section analysis of

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Investigation of the Section of $InAs-In_2Se_3$ in the System In-As-Se

the alloys $3InAs.2In_2Se_3$ $InAs.In_2Se_3$, $InAs.3In_2Se_3$ were recorded and are shown by figures 3, 4 and 5. In the three-component system In-As-Se there exist the section of $InAs-In_2Se_3$ and solid solutions with covalent bonds. There are 5 figures and [illegible] references, 5 of which are Soviet.

ASSOCIATION: Moldavskiy filial Akademii nauk SSSR (Moldavian Branch of the Academy of Sciences, USSR). Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Physico-technical Institute of the Academy of Sciences, USSR)

SUBMITTED: August 30, 1958

S/081/60/000/007/002/012
A006/A001

Translation from: Referativnyy zhurnal, Khimiya, 1960, No. 7, p. 58, # 25699

AUTHOR: Radautsan, S. I.

TITLE: Some Data on the Al - Sb - Cd Ternary System

PERIODICAL: Uch. zap. Kishinevsk. un-t, 1959, Vol. 39, pp. 69-72

TEXT: The author investigated a series of samples of AlSb - CdSb cross section of a ternary diagram. Solid solutions are not formed in the AlSb - CdSb system.

L. Shvedov

Translator's note: This is the full translation of the original Russian abstract.

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S/181/60/002/01/11/035
B008/B011

24.7700

AUTHORS: Nasledov, D. N., Pronina, M. P., Radautsan, S. I.

TITLE: Some Optical Properties of Solid Solutions of Indium Arsenoselenides and Indium Arsenotellurides

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 1, pp. 50 - 51

TEXT: The authors found a varying solubility in the systems $InAs-In_3Te_3$ and $InAs-In_2Se_3$ (Refs. 1,2), which is explained by structural and energy factors (Ref. 3). When studying the forbidden zone in alloys of the systems considered, they determined ΔE values for different compositions, according to the absorption edge. The methods applied to the synthesis and homogenization of the alloys had been described already earlier (Refs. 1-3). The absorption spectra were recorded with the aid of the infrared spectrophotometer ИКС-14 (IKS-14). Fig. 1 shows the absorption curves of InAs, In_2Se_3, as well as $4InAs \cdot In_2Se_3$, and $2InAs \cdot 3In_2Se_3$. The longwave absorption edge shifts

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Some Optical Properties of Solid Solutions of Indium Arsenoselenides and Indium Arsenotellurides

S/181/60/002/01/11/035
B008/B011

regularly from one binary component to the other. This is indicative of the fact that the width of the forbidden zone of the alloys has intermediate values between $\Delta E = 0.3$ ev and $\Delta E = 1.2$ ev. Fig. 2 shows absorption curves for InAs, $InAs.In_2Te_3$, and $InAs.3In_2Te_3$. Also in this case, the absorption edge shifts regularly from InAs to In_2Te_3. Results of optical measurement confirmed the possibility of obtaining substances in which the width of the forbidden zone, compared to the ΔE values of the binary initial components, has intermediate values.

The authors thank N. A. Goryunova for her discussion of results, and B. V. Pavlov for his aid in measurements. There are 2 figures and 6 references: 4 Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut AN SSSR (Leningrad Institute of Physics and Technology, AS USSR). Moldavskiy filial AN SSSR (Moldaviya Branch of the AS USSR)

SUBMITTED: May 11, 1958

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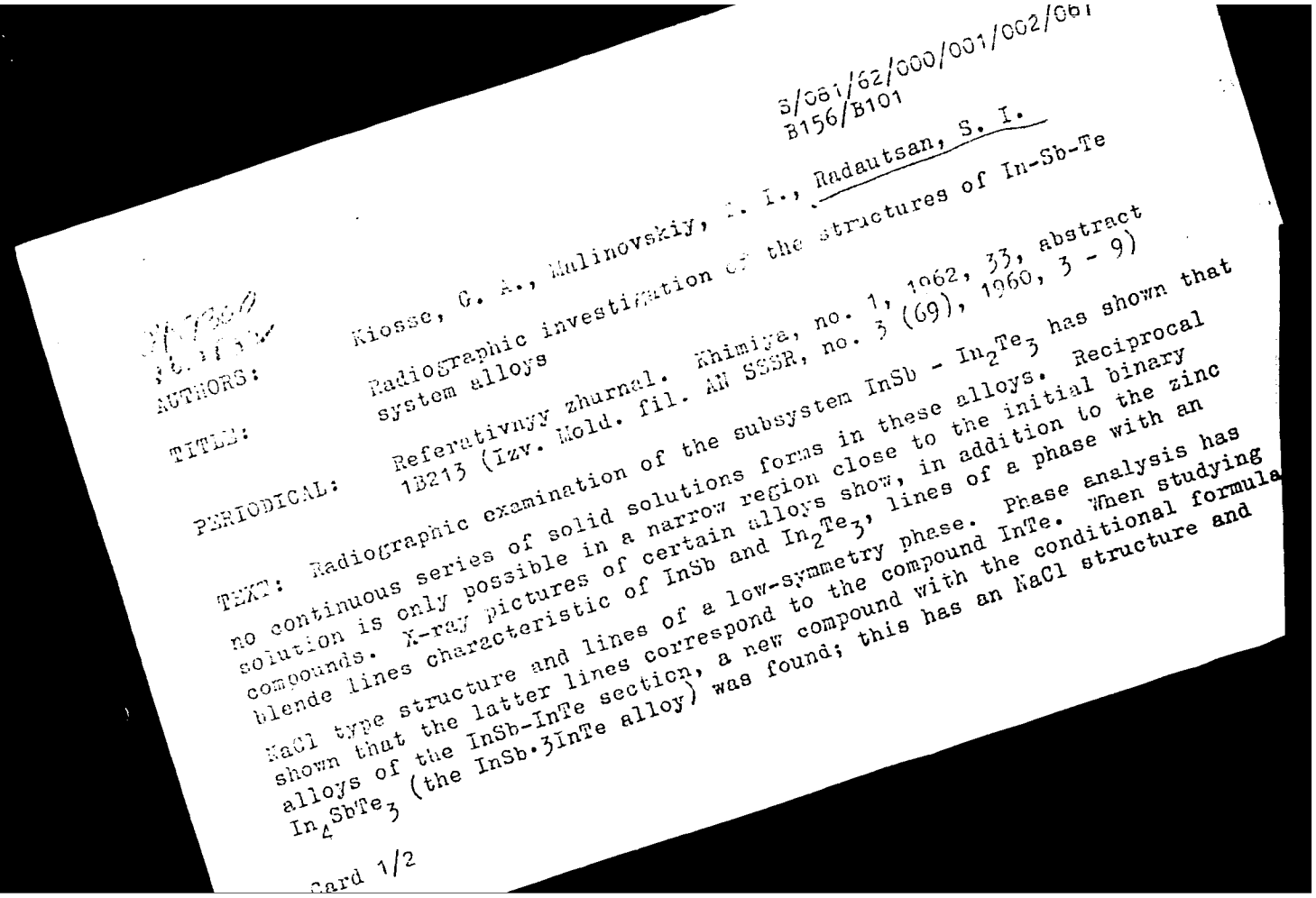

S/081/62/000/001/002/061
B156/B101

AUTHORS: Kiosse, G. A., Malinovskiy, I. I., Radautsan, S. I.

TITLE: Radiographic investigation of the structures of In-Sb-Te system alloys

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1962, 33, abstract 1B213 (Izv. Mold. fil. AN SSSR, no. 3 (69), 1960, 3 - 9)

TEXT: Radiographic examination of the subsystem InSb - In_2Te_3 has shown that no continuous series of solid solutions forms in these alloys. Reciprocal solution is only possible in a narrow region close to the initial binary compounds. X-ray pictures of certain alloys show, in addition to the zinc blende lines characteristic of InSb and In_2Te_3, lines of a phase with an NaCl type structure and lines of a low-symmetry phase. Phase analysis has shown that the latter lines correspond to the compound InTe. When studying alloys of the InSb-InTe section, a new compound with the conditional formula In_4SbTe_3 (the InSb·3InTe alloy) was found; this has an NaCl structure and

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Radiographic investigation of the ...

a lattice constant of a = 6.128 ± 0.003 Å. The fact that the intensities measured on Debye patterns coincide satisfactorily with the figures computed theoretically confirms that the structure has been correctly determined. Comparisons of the lines on an X-ray picture of the In_4SbTe_3 compound with the additional ...es on X-ray pictures of the $InSb-In_2Te_3$ subsystem alloys has shown that the new compound is present, in the form of an additional phase, in certain alloys of this subsystem. [Abstracter's note: Complete translation.]

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S/194/62/000/002/044/096
D201/D301

26 W3V

AUTHORS: Radautsan, S. I. and Molodyan, I. P.

TITLE: Diffusion annealing of the InSb-In_2Te_3 cuts of the indium-antimony-tellurium triple system

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 2, 1962, abstract 2-4-5m (Izv. Mold. fil. AN SSSR, 1960, no. 3 (69), 37-47)

TEXT: Using various methods the authors carried out investigations into the synthesized triple-system alloys of In-Sb-Te (4 alloy compounds of the InSb-In_2Te_3 cut : 9 InSb.In_2Te_3, 3InSb.In_2Te_3, InSb.In_2Te_3 and InSb.3In_2Te_3) up to diffusion annealing and after this process. The following diffusion annealing methods were used: Prolonged annealing, annealing under pressure and zone equalization. The annealing was carried out at 400 - 500°C for 800 - 2700 hours in capsules evacuated down to 1 x 10^{-3} mmHg and then filled with

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X

argon. The annealing under pressure was carried out in the atmosphere of either nitrogen or hydrogen, at a pressure of 200 - 700 atm and at a temperature of 500°C. The duration of annealing varied from 25 to 300 hours. An extra heated oven was used for zone equalization. The alloy was placed in a quartz ladle in an evacuated and then argon-filled quartz tube. The speed of tube movement in the furnace was 12 mm per hour. The temperature of the twin-zone section was 750 - 800°C, the additional heating temperature was 450 - 500°C. The homogeneity of synthesized alloys was checked by X-ray, thermal and microstructure analyses. The microhardness of various phases was determined. The analysis of $InSb-In_2Te_3$ cuts has shown that for a wide range of concentrations no hard substitution solution is formed. Prolonged annealing under pressure does not change appreciably the structure of analyzed alloys. X-ray analysis shows no phase multiplicity of the investigated alloys. The zone equalization of the $3InSb.InTe_3$ alloy made it possible to separate out a stable phase with NaCl structure, whose electrical conductivity is of a semiconductor character. This phase seems to be a chemical

S/194/62/000/002/044/096
D201/D301

Diffusion annealing of ...

composition having the formula In_4SbTe_3. 25 references. [Abstracter's note: Complete translation.]

Card 3/3

X

S/194/62/000/002/042/096
D201/D301

Ж 7700, 26.2410

AUTHOR: Radautsan, S. I.

TITLE: Investigating certain electrical properties of In_2Se_3 and In_2Te_3 compounds

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 2, 1962, abstract 2-4-p (Izv. Mold. fil. AN SSSR, 1960, no. 3 (69), 49-55)

TEXT: Investigations into temperature dependence of electric conductivity σ between 77 and 600 - 700°K and of the Hall coefficient R at room temperature of In_2Se_3 and In_2Te_3 compounds. At 200°C σ and R change step-wise which indicates a phase transition. The forbidden zone width of In_2Te_3 determined from the dependence $\sigma = f(T)$ is 1 eV and that of In_2Se_3 determined optically is 1.2 eV. After sintering the concentration of carriers is of the order of $\sim 10^{15}$ cm^{-3}. Repeated zone recrystallization increases the concentration

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Investigating certain electrical ...

up to 10^{16} - 10^{17} cm^{-3}. At room temperature the electron mobility in In_2Se_3 is 125 $cm^2/V.sec$ and in In_2Te_3 it becomes only 10 $cm^2/V.sec$. In_2Se_3 shows the anisotropy of microhardness along different cleavage planes. [Abstracter's note: Complete translation.]

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S/081/62/000/007/006/033
B156/B101

AUTHORS: Radautsan, S. I., Derid, O. P.

TITLE: Selenotellurides of indium

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 7, 1962, 57, abstract 7B386 (Izv. Mold. fil. AN SSSR, no. 3 (69), 1960, 105-106)

TEXT: The In_2Te_3-In_2Se_3 system is investigated and the existence of solid solutions recorded. [Abstracter's note: Complete translation.]

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S/081/62/000/009/016/075
B158/B101

AUTHORS: Radautsan, S. I., Madan, I. A., Molodyan, I. P., Ivanova, R. A.

TITLE: Formation of solid solutions in the system $InP-In_2Se_3$

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 9, 1962, 63, abstract 9B421 (Izv. Mold. fil. AN SSSR, no. 3(69), 1960, 107 - 109)

TEXT: Seven alloys in the section $InP-In_2Se_3$ of the ternary system In-P-Se were investigated using X-ray structural and microstructural analyses, and also by measuring the microhardnesses. The alloy $9InP \cdot In_2Se_3$ is monophase whilst alloys with a higher concentration of Se from $4InP \cdot In_2Se_3$ to $InP \cdot In_2Se_3$ are diphase, both phases crystallizing in the ZnS structure. An increase in the In_2Se_3 content is attended by a reduction in the lattice parameter, providing evidence that solid solutions are formed. [Abstracter's note: Complete translation.]

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S/137/62/000/011/018/045
A052/A101

AUTHORS: Rabotkin, G. I., Negreskul, V. V., Madan, I. A.

TITLE: [illegible] solutions on the base of a new compound In_4SbTe_3

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 17, abstract 111131 ("Izv. AN MoldSSR", no. 10 (88), 1961, 57 - 63, summary in Moldavian)

TEXT: InSb-InSe cross section of the ternary system In-Sb-Se and alloys of the system $In_4SbTe_{3x}Se_{3(1-x)}$ were investigated. The samples were prepared by fusing components in a vacuum of 1.10^{-3} mm mercury column at 800°C with 2-hour holding at this temperature and a slow cooling to 400°C at a rate of 50 deg./hour. X-ray diffraction and microstructure studies have shown, that in the system In-Sb-Se wide regions of solid solutions are absent and no new compounds are formed. Solubility of small amounts of InSe in InSb is possible. In the system $In_4SbTe_{3x}Se_{3(1-x)}$, in spite of the absence of $InSbSe_3$ compound, there are solid solutions with a structure of NaCl type on the base of In_4SbTe_3. The lattice

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S/137/62/000/011/018/045
A052/A101

Some solid solutions on the base of...

parameter varied from 6.10 Å at x=1 to 6.06 Å at x=0.75. Solid solutions of the mentioned alloys were produced immediately after synthesis what could not always be achieved with the initial ternary compound. There are 16 references.

V. Srednegorska

[Abstracter's note: Complete translation]

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S/137/62/000/011/020/045
A052/A101

AUTHORS: Radautsan, S. I., Ivanova, R. A.

TITLE: Solid solution formation on the base of complex compounds of $A^{II}B^{IV}C^{VI}_3$

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 18, abstract 11I133 ("Izv. AN MoldSSR", no. 10 (88), 1961, 64 - 70, summary in Moldavian)

TEXT: The systems $ZnGeSe_3$-ZnSe, $ZnGeSe_3$-Ga_2Se_3 and $ZnGeSe_3$-In_2Se_3 were investigated by means of microscopic and X-ray analyses and by measuring microhardness. The alloys were prepared in evacuated quartz ampoules in argon atmosphere at 1,100 - 1,250°C. It is established that in the studied systems on the base of the $ZnGeSe_3$ compound solid solutions with ZnS structure are formed. A study of the systems $CdGeT_3$-CdTe, $CdSnTe_3$-CdTe, $CdGeTe_3$-In_2Te_3, $CdSnTe_3$-In_2Te_3, $CdGeSe_3$-CdSe and $CdSnSe_3$-CdSe has shown that solid solution regions exist also

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S/137/62/000/011/020/045
A052/A101

Solid solution formation on the base of...

In these systems. There are 0 references.

Z. Rogachevskaya

[Abstracter's note: Complete translation]

Card 2/2

14301

S/058/62/000/012/037/048
A062/A101

26.2532

AUTHORS: Radautsan, S. I., Manovets, L. M.

TITLE: Electrical conductivity and thermo-electromotive force of certain alloys of indium arsenotellurides

PERIODICAL: Referativnyy zhurnal, Fizika, no. 12, 1962, 45-46, abstract 12E339 ("Izv. AN Mold. SSR", 1961, no. 10 (88), 71-75, summary in Moldavian)

TEXT: Alloys of the composition $(In\ As)_{3x}(In_2\ Te_3)_{1-x}$ were prepared by ampoule synthesis from components 99,999% pure and were subjected to a homogenizing annealing for 400 - 460 hours at 450 - 600°C. The alloys have a Zn S type structure: as X decreases the lattice period increases from 6.06_5 at x=0.75 to 6.11_0 Å at x=0.25. Alloys with x=0.57 and 0.50 show an appreciable internal microliquation. The microhardness of the alloys passes through a low maximum (450 kg/mm^2) at x=0.50. The temperature dependence of the electrical conductivity (σ) of the alloy with x=0.75 is characteristic for the impurity semiconductors; the width of the forbidden zone is Δ E=0.35 eV. At x=0.57 and 0.50, σ

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is by three orders higher than at x=0.75 and changes very insignificantly with temperature. The thermo-electromotive force (α) of the alloys at room temperature is equal (in μV/degree) to 60 at x=0.75; 25 at x=0.57 and 40 at x=0.50 and increases linearly with temperature. The alloys examined are degenerate materials.

V. Neshpor

[Abstracter's note: Complete translation]

S/137/62/000/011/021/045
A052/A101

AUTHORS: Molodyan, I. P., Radautsan, S. I., Madan, I. A.

TITLE: Some structural and thermal investigations of In_4SbTe_3 compound

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1962, 18 - 19, abstract 11I140 ("Izv. AN MoldSSR", no. 10 (88), 1961, 91 - 94)

TEXT: In_4SbTe_3 compound and some alloys of the $InSb_xTe_{1-x}$ cross section were investigated by means of high-temperature X-ray and thermal analyses. The alloys were prepared from ≥99.995 pure In, Sb and Te, each in evacuated quartz ampoules, with the application of vibrational stirring in the process of 7 - 10-hour holding at 800°C. After that the alloys were cooled to 400°C at a rate of 15 - 20 deg./hour. X-ray analysis was made at 20, 100, 200, 250, 300, 400, 500, 550, 575 and 585°C. It is established that In_4SbTe_3 compound dissociates in the process of heating and the degree of dissociation increases with temperature and holding time. The In_4SbTe_3 compound melts incongruently at 586 ± 5°C. There are 7 references.

[Abstracter's note: Complete translation]

Z. Rogachevskaya

Card 1/1

L 15677-63 EWP(q)/EWT(m)/BDS AFFTC RDW/JD

ACCESSION NR: AR3003581 S/0081/63/000/008/0059/0059

SOURCE: RZh. Khimiya, Abs. 8B407

AUTHOR: Radautsan, S. I., Madan, I. A., Ivanova, R. A.

TITLE: Solid solutions of phosphido-selenides of gallium

CITED SOURCE: Izv. AN Mold. SSR, no. 10(88), 1961, 98-101

TOPIC TAGS: Ga alloy , Ga-P-Se system

TRANSLATION OF ABSTRACT: By methods of x-ray structure and microstructure analyses, the existence was established of solid solutions of the form (GaP) sub 3x - (Ga sub 2 Se sub 3) sub 1-x in the ternary system Ga-P-Se in the whole range of concentrations. From the author's resume.

DATE ACQ: 12Jun63 SUB CODE: CH,EL ENCL: 00

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S/137/62/000/005/075/150
A006/A101

AUTHORS: Berger, L. I., Radautsan, S. I.

TITLE: Some properties of arsenoselenides of indium

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 14, abstract 5I79 (V sb. "Vopr. metallurgii i fiz. poluprovodnikov", Moscow, AN SSSR, 1961, 129-133)

TEXT: The authors investigated microhardness, lattice parameters, electric conductivity σ, concentration and mobility of current carriers, heat conductivity χ and the coefficient of linear expansion of alloys of the InAs - In_2Se_3 section in the In-As-Se system. The alloying of components was performed in evacuated and sealed quartz ampoules. With the aid of the roentgenostructural method it was established that in the InAs - In_2Se_3 system substitution solid solutions with a zinc blende structure are formed in the range from InAs up to the composition $2InAs \cdot 3In_2Se_3$. It is supposed that there is no InAs solid solution in In_2Se_3. It was established that at low concentrations of In_2Se_3 in InAs the number of current carriers and σ increase. At a further increase in the In_2Se_3 content, the concentration of the current carriers and σ decrease gradually.

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S/137/62/000/005/075/150
A006/A101.

Some properties of arsenoselenides of indium

Since all specimens showed electron-type conductivity, it is assumed that a sharp increase of the concentration is connected with the origination of a greater number of donor levels on account of Se atoms which substitute As. Measurements of χ have shown that if small amounts of In_2Se_3 are added to InAs, χ decreases more rapidly than σ. The temperature dependence χ of the alloys is in a satisfactory agreement with Pierls' theory. Measurements of the coefficient of heat expansion show that in the 150 - 650°C temperature range its value increases with higher temperature, in accordance with Grüneisen's theory.

V. Srednogorska

[Abstracter's note: Complete translation]

Card 2/2

[illegible]/61/003/011/011/056
[illegible]/B138

26.7421

AUTHORS: Radautsan, S. I., and Malk[illegible]-Sh.

TITLE: Some electric properties of [illegible] arsenoselenides

PERIODICAL: Fizika tverdogo tela, v. 3, no. 11, 1961, 3324-3329

TEXT: Among the new semiconducting materials the solid solutions of the type $A^{III}B^{V} - A_2^{III}B_3^{VI}$ are of special interest because of their high cationic vacancy concentrations (up to 5.5·10[illegible] cm^{-3}). The authors have chosen the system InAs - In_2Se_3 to study the most important physico-chemical properties of various compositions. Composition and properties of the ten series of specimens investigated may be seen from the table. The specimens, which were synthesized from pure (99.99 %) elements and were in the shape of small plates with a dimensional ratio of 10 : 3 : 1. After polishing, silver was deposited to provide for good ohmic contact, and they were then placed in a special device in argon atmosphere. A compensation circuit was used to measure electrical conductivity σ and Hall effect in dependence on the composition of the specimens. [illegible] was investigated

X

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S/181/61/003/011/011/056
B102/B138

Some electric properties of...

between 80 and 800°K and $\log \sigma = f(1/T)$ curves were drawn for several compositions. In most cases $\log \sigma$ decreased with decreasing temperature, for $2InAs\text{-}3In_2Se_3$ and $InAs \cdot 9In_2Se_3$ below zero. For $9InAs \cdot In_2Se_3$ and $3InAs \cdot In_2Se_3$ $\log \sigma$ did not change with temperature. σ as a function of In_2Se_3 content shows a steep growth at low selenide concentrations, and reaches a maximum between InAs and $21\ InAs \cdot In_2Se_3$. With further increase in selenide content it drops almost exponentially. The carrier concentration curve shows a similar course, the mobility curve drops from $\sim 7 \cdot 10^3 cm^2/v.sec$ (InAs) with increasing selenide content. The fact that σ (and the electron concentration) only increases for low selenide contents indicates that with growing selenide concentration the impurity atoms have ever decreasing influence on the properties of the semiconductor, while the role of the intrinsic defects grows. V. P. Zhuze, V. M. Sergeyeva and A. I. Shelykh (FTT, 2, 2858, 1960) and T. N. Vengel' and B. T. Kolomiyets (ZhTF, XXVII, 2484, 1957) obtained similar results. According to I. Z. Fisher (FTT, 1, 193, 1959) it may be assumed that, in the system studied, the additional electric field induced by lattice distortion

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Some electric properties of...

increases with increasing number of vacancies in the indium sublattice. The homogenizing effect of annealing under pressure was confirmed, as also its influence on the electrical properties could be proved. D. N. Nasledov and I. A. Feltin'sh (FTT, 1, 565, 1959) are mentioned. There are 4 figures, 1 table, and 25 references: 21 Soviet and 4 non-Soviet. The two references to English-language publications read as follows: H. Welker, H. Weiss. Solid State Physics. 3, New York, 1956; J. C. Woolley, B. A. Smith, Proc. Phys. Soc. 72, 214, 1958.

ASSOCIATION: Moldavskiy filial AN SSSR (Moldavian Branch of AS USSR). Institut fiziki i matematiki Kishinev (Institute of Physics and Mathematics Kishinev)

SUBMITTED: May 24, 1961

Legend to the Table: (1) Specimen no. (2) composition, (3) molecular ratio of the binary components in %, (4) their weight ratio in %, (5) lattice constant in A, (6) temperature of analysis in °C, (7) microhardness in kg/mm^2; (8) after annealing, (9) before annealing, (10) low-symmetry structure.

Card 3/4

RADAUTSAN, S.I.; MADAN, I.A.

Solid solutions of indium phosphide-selenides. Izv. AN Mold. SSR. no.5:92-98 '62. (MIRA 18:3)

24.7000

Z/055/62/012/005/007/009
I040/I240

AUTHOR: Radautsan, S. I.

TITLE: Investigation of some complex semiconducting solid structures and compounds of indium

PERIODICAL: Chekhoslovatskiy fizicheskiy zhurnal, v. 12, no. 5, 1962, 382–391

TEXT: Systems of InP, InAs, InSb with In_2S_2, In_2Se_3, In_2Te_3 were studied in order to prepare solid solutions between indium compounds of the type A(III)B(V) and $A_2(III)B_3(VI)$ under an argon atmosphere. The products were analyzed by X-ray diffraction, thermally and metallographically. In such systems solid solutions, over a wide rangem or new compounds were formed. The temperature dependence of electrical conductivity and of the Hall effect were also studied. Solid solutions with the zinc blende structure and semiconducting properties were found in the InP-In_2Se_3, and InAs-In_2Se_3 and In As-In_2-Te_3 systems. A new compound In_4SbTe_3 was found having NaCl structure with a lattice parameter of 6.12_8Å and semiconducting properties. New fields of application for the semiconducting InAs solid solutions on the basis of their electric, magnetic, and optical characteristics are suggested. There are 5 tables.

VB

ASSOCIATION: Institut fiziki i matematiki Akademii Nauk Moldavskoy SSR, Kitinev (Ins iture of Pbysics and Mathematics, Academy of Sciences MolSSR, Kitinev).

SUBMITTED: June 23, 1961

Card 1/1

Some investigations of defects in diamond-like semiconductors. S. I. Radautsan.

Semiconducting solid solutions based on mercury selenide and indium selenide. E. I. Gafrilitza, S. I. Radautsan.

[Electrical conductivity and thermoemf of solid solutions of indium phosphide-selenide. S. I. Radautsan, V. M. Mirzorodskiy, S. D. Remenko. (Not Presented).]

Physico-chemical properties of some alloys in the system cadmium-indium-selenium-tellurium. O. P. Derid, S. I. Radautsan, V. M. Mirzorodskiy. (Presented by S. I. Radautsan--20 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

Investigation of the efficiency coefficients in the solid solution system AlSb-GaSb. I. I. Burdiyan. (10 minutes).

[Investigation of some properties of indium arseno-telluride doped with bismuth. D. V. Gitzu, S. I. Radautsan. (Not Presented)].

Physico-chemical properties of the pseudo-binary alloys of arsenic with indium telluride. B. P. Kotrubenko, V. I. Lange, T. I. Lange.

Study of the anisotropy of microhardness of some semiconducting compounds. D. V. Gitzu, V. I. Lange, T. I. Lange. (Presented by D. V. Gitzu--15 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

Concerning solid solutions based on indium antimonide in the system indium-antimony-tellurium. I. P. Molodyan, S. I. Radautsan (10 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

Some properties of solid solutions based on gallium phosphide. V. V. Nezreskul, S. I. Radautsan, I. K. Takhtareva (10 minutes).

Some electrical, optical, and magnetic properties of the ternary semiconducting compound $CdIn_2Te_4$. I. V. Potykevich, O. I. Belyayev, S. V. Chepura (10 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

NASLEDOV, D.N., prof., red.; GORYUNOVA, N.A., prof., red.; GITSU, D.V., kand. fiz.-mat. nauk, red.; LANGE, V.N., kand. fiz.-mat. nauk, red.; RADAUTSAN, S.I., kand. fiz.-matem. nauk, red.

[Research on semiconductors; new semiconductor materials] Issledovaniia po poluprovodnikam; novye poluprovodnikovye materialy. Kishinev, Kartia Moldoveniaske, 1964. 173 p. (MIRA 17:5)

1. Akademiya nauk Moldavskoy SSR. Institut fiziki i matematiki.

L 6695-65 EWT(m)/EWP(q)/EWP(b) RAEM(t) RDW/JD/MLK

ACCESSION NR: AT4044567 S/0000/64/000/000/0134/0142 48 47

AUTHOR: Lyalikov, Yu. S.; Kopanskaya, L. S.; Molodyan, I. P.; Radautsan, S. I. (Candidate of physico mathematical sciences)

TITLE: Microchemical phase analysis of some semiconductor alloys of the system In - Sb - Te

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikovy*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. Izd-vo Kartya Moldovenyaske, 1964, 134-142

TOPIC TAGS: phase analysis, microchemical phase analysis, semiconductor alloy, In - Sb - Te alloy, potentiometric titration, x-ray structural analysis, microhardness, microstructure

ABSTRACT: Microanalysis of the phase composition of In-Sb-Te alloys was carried out by potentiometric titration methods; antimony, tellurium, and indium were determined using methods previously described. Micro-samples of the different phases of this system were obtained with a drilling attachment to a microhardness meter base, using drills 0.1 mm in diameter. The phase samples obtained in this manner were not contaminated by other phases provided the drilling was not deeper than the phase diameter of 0.2 mm. A comparison of the single phase alloy In_4SbTe_3

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with the ternary compound In_4SbTe_3 showed that the error of element determination did not exceed 2% (abs.). Molar calculation by chemical analysis confirmed the alloy composition. The three-phase alloy $3In_3Sb_3 \cdot In_2Te_3$ was then investigated by this method. Only the gray and light gray phases could be analyzed microchemically. Results indicated that the gray phase contained all three elements and represented the solid solution of In Sb, while the light gray phase revealed only indium and tellurium. It was shown that this alloy did not contain its original compounds InSb and In_2Te_3. Ingots obtained after zone leveling of the alloy $In_3Sb_3 \cdot In_2Te_3$ were also analyzed. The beginning, middle and end of the ingot were checked for phases, microhardness, lattice type and lattice constant. Microchemical analysis showed that the ratio of the elements in the beginning of the ingot was close to that in the ternary compound In_4SbTe_3. Analysis of the middle showed a decrease in indium and an increase in antimony. The final section consisted of phases corresponding to InSb and also In_4Sbte_3. These data agree with micro and x-ray structural analyses. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: Institut fiziki i matematiki AN MolSSR (Institute of Physics and Mathematics, AN Mol.SSR)

SUBMITTED: 13Dec63 ENCL: 00 SUB CODE: MM

Card 2/2 NO REF SOV: 008 OTHER: 000

L 12649-65 EWT(m)/EWP(b) AFWL/SSD/RAEM(a)/ESD(gs)/ESD(t) RDW/JD/MLK

ACCESSION NR: AT4044568 S/0000/64/000/000/0143/0152

AUTHOR: Molodyan, I.P., Radautsan, S.I. (Candidate of physico-mathematical sciences)

TITLE: Solid solutions based on InSb in the system In-Sb-Te

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikovy*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. Izd-vo Kartya Moldovenyaske, 1964, 143-152

TOPIC TAGS: indium antimonide, indium telluride, indium semiconductor, indium solid solution, indium alloy, antimony alloy, tellurium alloy

ABSTRACT: In continuation of earlier work on the $(InSb)_{3x}(In_2Te_3)_{1-x}$ and $(InSb)_x(InTe)_{1-x}$ sections of the In-Sb-Te system, the authors studied the possible existence of broad regions of homogeneity near InSb. The present paper reports the results of physicochemical, mechanical and electrical studies on 14 alloys along the $(InSb)_x(InTe)_{1-x}$ section with x varying from 0 to 1.0. Studies of the lattice structure, debyegram and microhardness showed homogeneous solid solutions in the range from x = 1 to x = 0.85 (ZnS type lattice, microhardness increasing from 217 to 230), as well as at x = 0.25 (NaCl type lattice, hardness of 124); pure InSb also had a ZnS type lattice, while pure InTe had a NaCl type

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ACCESSION NR: AT4044568

lattice. The Hall effect and thermoelectromotive force were found to decrease sharply, while the electrical conductivity increased sharply, on the addition of small amounts (0.1%) of InTe, but further admixture of InTe had little effect up to the solubility limit. There was little effect of temperature on any of these three variables. Preliminary data on the solid solutions along the sections $(InSb)_{2x}(In_2Te)_{1-x}$, $(InSb)_{5x}(In_2Te_5)_{1-x}$ and $(InSb)_{7x}(In_4Te_7)_{1-x}$ confirmed the existence of broad areas of homogeneity. Orig. art has: 5 figures and 1 table.

ASSOCIATION: Institut fiziki i matematiki, AN Mol. SSR (Institute of Physics and Mathematics, AN Mol. SSR)

SUBMITTED: 13Dec63 ENCL: 00 SUB CODE: MM, EC

NO REF SOV: 009 OTHER: 006

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L 23847-65 EWT(m)/EWA(d)/EWP(j)/EWP(t)/EWP(b) IJP(c) RDW/JD/MLK/RM
ACCESSION NR: AT4044569 S/0000/64/000/000/0153/0157

AUTHOR: Radaustan, S.I. (Candidate of physico-mathematical sciences); Maslyanko, R.A.; Markus, M.M.

TITLE: Some complex systems based on indium telluride

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikovy*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. izd-vo Kartya Moldovenyaske, 1964, 153-157

TOPIC TAGS: indium 27 telluride, indium alloy 18, tellurium 17 alloy, selenium 27 alloy, semiconductor, thiogallate lattice, sphalerite lattice, telluride hardness

ABSTRACT: X-ray, micrographic and microhardness studies were carried out on 27 ternary and quaternary systems in the sections $(CdIn_2Se_4)_x - (CdIn_2Te_4)_{1-x}$, $(Cd_2SeTe)_{3x} - (In_4Se_3Te_3)_{1-x}$ and $(AgInTe_2)_{3x} - (In_2Te_3)_{2(1-x)}$. Determinations of the lattice constants showed that the first series contained only thiogallate type lattices, with the exception of the pure $CdIn_2Se_4$. In the second series, thiogallate structures seemed to alternate with sphalerite structures, while in the third series, wide ranges of thiogallate ($x = 0.1-0.5$)

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and chalcopyrite (x = 0.7-1.0) structures were separated by a narrow 2-phase zone. Neither X-ray patterns nor photomicrographs are presented. Microhardness was studied only in the first series, where it varied from 220 kg/mm^2 for $CdIn_2Te_4$ to 300 kg/mm^2 for $CdIn_2Se_4$, and in the third series, where it increased from 180 to 240 kg/mm^2 as x increased from 0 to 0.5. Orig. art. has: 2 tables and 1 figure.

ASSOCIATION: Institut fiziki i matematiki AN MolSSR (Institute of Physics and Mathematics, AN Mol SSR)

SUBMITTED: 13Dec63 ENCL: 00 SUB CODE: IC,MM

NO REF SOV: 009 OTHER: 004

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L 12655-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/AFWL/ASD(a)-5/ESD(t) JD/MLK

ACCESSION NR: AT4044570 S/0000/64/000/000/0158/0163

AUTHOR: Radautsan, S. I., Candidate of physico-mathematical sciences, Negreskul, V.V.

TITLE: Solid solutions of gallium phosphidosulfides

SOURCE: AN MolSSR. Institut fiziki i matematiki. Issledovaniya po poluprovodnikam; novy*ye poluprovodnikovy*ye materialy* (Semiconductor research; new semiconductor materials). Kishinev, Gos. izd-vo Kartya Moldovenyaske, 1964, 158-163

TOPIC TAGS: gallium sulfide, gallium phosphide, semiconductor, pseudobinary alloy

ABSTRACT: In view of the high-level semiconductor characteristics of gallium phosphide and gallium sulfide, the $(GaP)_{3x}$ - $(Ga_2S_3)_{1-x}$ system was selected as the base of solid solutions in an exploratory study of novel semiconductor materials. The 99.9% pure elements, vibrationally mixed in various combinations, were fused in vacuum quartz ampoules to produce 12 pseudo-binary alloys represented by the S-P Ga concentration diagram shown in Fig. 1 of the Enclosure. A copper-emission, nickel-filter, RKU-114 chamber was used for the x-ray and microstructural analyses and a PMT-3 device was used to measure the microhardness in investigations designed to identify the region of the existence of the solid solutions. The study proved a) solubility of Ga_2S_3 in GaP within the range of x from 1.0 to

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ACCESSION NR: AT4044570

0.3, and b) the existence of gallium phosphide based solid solutions with a structure of the zinc blend type in the range of GaP concentrations up to 70 mol. %. The lattice constant "a" was found to decrease linearly from 5.45 Å for x = 1.0 to 5.34 Å for x = 0.3. The solid solutions are formed without additional phases immediately after synthesis and have semiconductor properties. Orig. art. has: 1 table and 3 figures.

ASSOCIATION: Institut fiziki i matematiki, AN MolSSR (Institute of Physics and Mathematics, AN MolSSR)

SUBMITTED: 13Dec63 ENCL: 01 SUB CODE: IC, EC

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ENCL: 01

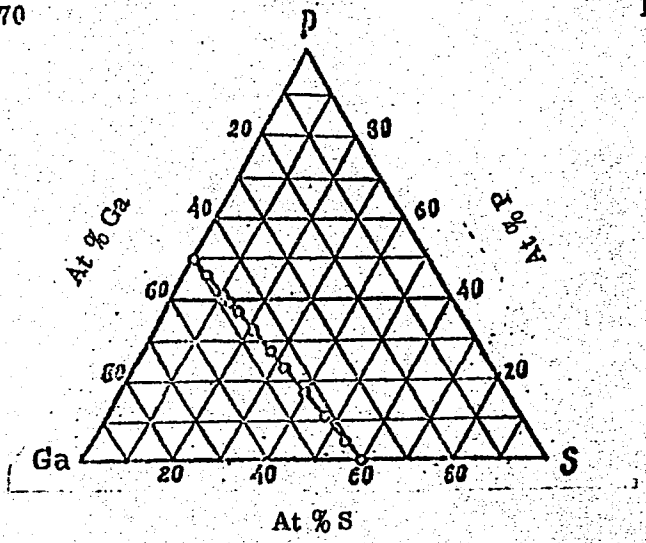

Fig. 1 - Position of investigated alloys in the pseudobinary $(GaP)_{3x} - (Ga_2S_3)_{1-x}$ system.

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ACCESSION NR: AP4041365 S/0048/64/028/006/1002/1006

AUTHOR: Negreskul, V.V.; Radautsan, S.I.

TITLE: Some properties of gallium phosphide solid solutions /Report, Third Conference on Semiconductor Compounds held in Kishinev 16 to 21 Sep 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1002-1006

TOPIC TAGS: semiconductor; electric conductivity, Hall constant, solid solution, photoconductivity, gallium compound

ABSTRACT: The solubility of Ga_2S_3, Ga_2Se_3, and Ga_2Te_3 in GaP was investigated, and the conductivities, Hall constants, and photoconductivities of GaP and some of the GaP-Ga_2S_3 solid solutions were measured. The materials were produced by fuzing and vibrating the purified components in evacuated quartz ampoules. The samples were ground to size with carborundum, and electrical contact was provided by vacuum deposited silver films or spark welded platinum conductors. The system $(GaP)_{3x}(Ga_2S_3)_{1-x}$ formed solid solutions with the zincblende structure for x between 1 and 0.3; Ga_2Se_3 formed solid solutions with GaP in all proportions; and Ga_2Te_3 and GaP proved to be mutually soluble only when the composition was close to that of one of the

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compounds. The lattice constants of the solid solutions varied linearly with composition; that of the sulfide system was 5.45 Å for x = 1 (GaP) and 5.32 Å for x = = 0.3. The conductivity and Hall constant of n-type GaP were measured at temperatures from 80 to 300°K. The carrier concentration was 2.2×10^{16} cm^{-3}, and the mobility was 90 cm^2/V sec. These values are somewhat less than those reported by D.N. Nasledov and S.V.Slobodchikov (Fiz.tverdogo tela 4, 2755,1962), but the temperature dependence of the mobility was similar to that found by these authors; the mobility decreased rapidly with increasing temperature. Calculations performed with the theory of D.J.Howarth and E.H.Sondheimer (Proc.Roy.Soc.219A,53,1953) indicated that most but not all of the scattering was due to polar lattice vibrations. The Hall constant decreased with increasing temperature much more rapidly at temperatures above 220°K than at lower temperatures. This is ascribed to the presence of two impurity levels, the activation energies of which were found to be 0.026 and 0.48 eV. The room temperature conductivity of the $(GaP)_{3x}(Ga_2S_3)_{1-x}$ solid solutions decreased rapidly with increasing sulfide content from 10^{-1} $(ohm\ cm)^{-1}$ for x = 1 to 10^{-10} $(ohm\ cm)^{-1}$ for x = 0.3. This is ascribed to the influence of the intrinsic defects introduced into the lattice by the solute. The activation energy obtained from the temperature dependence of the conductivity increased from 1.02 eV for x = 0.8 to 2.0 eV for x = 0.3. Activation energies for the solutions with x between 1 and 0.6

ACCESSION NR: AP4041365

were obtained from the spectral distribution of the photoconductivity. These were in good agreement with those obtained from the temperature dependence of the dark conductivity. Orig.art.has: 6 formulas, 3 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: SS,IC NR REF SOV: 013 OTHER: 007

Card 3/3

ACCESSION NR: AP4041368 S/0048/64/028/006/1017/1022

AUTHOR: Molodyan, I.P.; Radautsan, S.I.

TITLE: Some homogeneous phases of indium antimonide-telluride [Report, Third Conference on Semiconductor Compounds held in Kishinov 16 to 21 Sep 1963]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1017-1022

TOPIC TAGS: solid solution, semiconductor, indium antimonide, indium compound

ABSTRACT: The following systems were investigated: $(InSb)_{2x}(In_2Te)_{1-x}$, $(InSb)_x$-$(InTe)_{1-x}$, $(InSb)_{3x}(In_2Te_3)_{1-x}$, $(InSb)_{7x}(In_4Te_7)_{1-x}$, and $(InSb)_{5x}(In_2Te_5)_{1-x}$. The materials were produced by fusing the elements in a manner described elsewhere (S.I. Radautsan and I.P. Molodyan, Izv. Mold. filiala AN SSSR No.3 (69) 37,1960). All these systems formed solid solutions for $1 \geq x \geq 0.85$ and none formed solid solutions for $0.80 \geq x$. The solutions all had the ZnS structure with a lattice constant somewhat less than that of InSb. The nature of these solutions is discussed, and it is suggested that similar large regions of solubility may occur in other $A^{III}-B^{V}-C^{VI}$ systems. The $(InSb)_x(InTe)_{1-x}$ system was investigated in more detail than the others, and the limit of solubility was found to occur for x between 0.85 and 0.83. The ex-

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istence of the compound In_4SbTe_3 was established; for x = 0.25 the system formed a single phase with the NaCl structure, although two phases were present for x = 0.23 and x = 0.27. The conductivity, Hall constant, and thermal emf of a number of materials of the $(InSb)_x(InTe)_{1-x}$ system were measured at temperatures from 80 to 650°K. The conductivities and Hall constants of the solid solutions were nearly independent of temperature, and the thermal emf's increased slowly with increasing temperature. The conduction electron concentration increased sharply from 7×10^{16} cm^{-3} for x = 1 (InSb) to 9×10^{18} cm^{-3} for x = 0.999 and remained nearly constant at that value as x was reduced to 0.80 (there was no marked change in the electrical properties at the appearance of the second phase). The electron mobility decreased somewhat less sharply from approximately 48 000 cm^2/V sec for x = 1 to 1500 cm^2/V sec for x = 0.97 and also remained nearly constant as x was further decreased. All the alloys of the $(InSb)_x(InTe)_{1-x}$ system with $1 \geqq x \geqq 0.27$ were found to exhibit n-type conduction, and those with $0.25 \geqq x$, p-type. Thus, a transition from p- to n-type conduction can be achieved in these alloys by altering the composition.

"The authors express their sincere gratitude to Prof.N.A.Goryunova and Prof.D.N.Nasledov for their great interest in the work and their valuable advice proffered during discussions of it, and also to M.M.Markus and L.M.Manovts of the Institute of Physics and Mathematics of the Academy of Sciences of the Moldavian SSR for their

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ACCESSION NR: AP4041368

participation in the experimental work." Orig.art.has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: SS, IC NR REF SOV: 011 OTHER: 005

ACCESSION NR: AP4041376 S/0048/64/028/006/1053/1056

AUTHOR: Derid, O.P.; Radautsan, S.I.; Mirgorodskiy, V.M.; Markus, M.M.

TITLE: Physical and chemical properties of some alloys of the indium-selenium-tellurium-cadmium system /Report, Third Conference on Semiconductor Compounds held in Kishinev 16 to 21 Sep 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.6, 1964, 1053-1056

TOPIC TAGS: alloy system, semiconductor property, solid solution, indium, selenium, tellurium, cadmium

ABSTRACT: Those alloys of the In-Se-Te-Cd system were investigated, the compositions of which are represented by points in the CdTe-CdSe-In_2Te_3-In_2Se_3 plane of the tetrahedral diagram between the In_2Te_3-In_2Se_3 and $CdIn_2Te_4$-$CdIn_2Se_4$ traverses. Solid solutions were formed over a wide range of composition, as shown by the shaded portion of the diagram in Figure 1 of the Enclosure 01. All these solid solutions crystallized with the zincblende structure. The solid solutions with small cadmium content exhibited superstructure lines characteristic of In_2Te_3; those with large cadmium content (except the solutions very close in composition to $CdIn_2Se_4$)

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ACCESSION NR: AP4041376

were ordered similarly to $CdIn_2Te_4$; and the solid solutions with intermediate cadmium content formed disordered crystals. The solid solutions with compositions $(In_2Te_3)_x(In_2Se_3)_{1-x}$ and $(CdIn_2Te_4)_x(CdIn_2Se_4)_{1-x}$ were investigated in more detail than the others. Liquidus and solidus curves are given for these systems, and the lattice constant was found to vary smoothly with composition in accord with Vegard's law in both systems. The electric conductivity of the $(In_2Te_3)_x(In_2Se_3)_{1-x}$ solutions increased by a factor 100 as x decreased from 1 to 0.93 and decreased to approximately its value for In_2Te_3 as x decreased to 0.80. The temperature dependence of the conductivity was that characteristic of semiconductors. It is suggested that the formation of solid solutions by simultaneous iso- and heterovalent substitution should be possible also in other complex semiconductor systems. "The authors express their deep gratitude to Professor N.A.Goryunova for her great interest in the work and for valuable advice proffered during discussions of it, and also to R.A. Maslyanko of the Institute of Physics and Mathematics of the Academy of Sciences of the Moldavian SSR for her participation in the experimental work." Orig.art.has: 4 figures.

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L 24653-65 EPR/EWT(m)/EWP(b)/EWP(t) Ps-4 IJP(c) RDW/JD
ACCESSION NR: AP5004704 S/0030/64/000/009/0075/0078

AUTHOR: Pyelikov, Yu. S. (Corresponding member AN MolSSR); Radautsan, S. I. (Candidate of physico-mathematical sciences); Kopanskaya, L. S.; Molodyan, I. P.

TITLE: Synthesis and chemical analysis of complex phase semiconductors

SOURCE: AN SSSR. Vestnik, no. 9, 1964, 75-78

TOPIC TAGS: indium, antimony, tellurium, selenium, aluminum, semiconductivity, chemical compound, analytic chemistry

Abstract: The synthesis of complex semiconductor systems, and their chemical and phase composition, have been investigated at the Institute of Physics and Mathematics and the Institute of Chemistry of the Moldavian Academy of Sciences. The results of investigations of systems of the $A^{III}B^{V}C^{VI}$ type are reported. In the indium-antimony-tellurium system, a new phase, In_4SbTe_3, with a NaCl-type lattice was detected and separated by the zone-levelling method. A large region of complete solid solubility, with a zinc blende-type structure, was also detected in $(InSb)_x-(InTe)_{1-x}$ compositions for $x < 0.85$. The existence of monovalent indium atoms was assumed in both structural

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types. The formation of vacancies in either cationic or anionic sublattices in solid solutions is the most likely mechanism of crystallization.

Large solid-solubility regions near the $A^{III}B^{V}$ component were also observed in the indium-arsenic-tellurium system (in the 0—50 mol % InTe range), and in the indium-arsenic-selenium and aluminum-antimony-tellurium systems. Recently, the possibility of dissolving 10 at% tellurium in InAs was discovered. The mechanism of solid dissolution of sixth-group elements in $A^{III}B^{V}$ compounds is explained. An attempt to synthesize Ga_4SbTe_3, In_4AsTe_3, or In_4SbSe_3 produced only complex mixtures of binary compounds and elements. Formation of large complete solid-solubility regions by heterovalent substitution is also considered possible in other ternary or more complex systems, near compounds of the $A^{II}B^{VI}$ type and in ternary diamond-type structures.

Chemical, microchemical, and physicochemical analytical methods were developed for determination of components in the indium-antimony-tellurium and gallium-phosphorus-sulfur systems. The pulse polarographic method is considered especially convenient for quantitative chemical analysis of thin semiconductor films deposited on a glass substrate by the Vekshinski method.

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ACCESSION NR: AP5004704

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A microboring machine with a PMT-3 microhardness gauge, and the anodic-dissolution method, were used for mechanical and electrochemical phase separation to determine the chemical compostion of each phase in the indium-antimony-tellurium and In-InTe systems, respectively. Phase separation in the Ga-GaP and Ga_2S_3-GaP systems was achieved by selective dissolution in hydrochloric acid.

ASSOCIATION: Institut fiziki i matematiki Akademii nauk Moldavskoy SSR (Institute of Physics and Mathematics, Academy of Sciences, MolSSR); Institut khimii Akademii nauk Moldavskoy SSR (Institute of Chemistry, Academy of Sciences, MolSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: SS, GC

NO REF SOV: 000 OTHER: 000 FSB v. 1, no. 1

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L 61965-65 EWP(w)/EWG(m)/EWA(d)/T/EWP(t)/EWP(b) IJP(c) RDW/JD/JG
ACCESSION NR: AP5017939 GE/0030/65/010/001/0037/0043

AUTHOR: Nasledov, D. N.; Negreskul, V. V.; Radautsan, S. I.; Slobodchikov, S. V.

TITLE: The scattering mechanism of current carriers of tellurium-doped gallium phosphide

SOURCE: Physica status solidi, v. 10, no. 1, 1965, 37-43

TOPIC TAGS: gallium phosphide, tellurium doped semiconductor, Hall effect, semiconductor conductivity, semiconductor temperature effect, electron mobility, current carrier scattering

ABSTRACT: The Hall coefficient and specific conductivity were determined on single n-type tellurium-doped gallium phosphide crystals in the 77 - 600K temperature range to establish the temperature-dependence of these values and to gain further insight into the mechanism of carrier scattering. The temperature-dependence of the electrical conductivity in typical crystals is shown in Figure 1 of the Enclosure; the temperature-dependence of the Hall coefficient, in Figure 2 of the Enclosure. On the basis of the experimental data, the relation between electron mobility and temperature was determined. Typical results are presented in Figure 3 of the Enclosure. The main determining factor in the scattering mechanism is scattering on optical photons (polar scattering); however,

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ACCESSION NR: AP6017939

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in the low end of the temperature range investigated and in instances where the crystal is grossly contaminated, other factors, such as space charge, also become significant. The temperature-dependence of the Hall effect suggests a donor level with an ionization energy of approximately 0.11 electron-Volt. Orig. art. has: 4 figures and 7 formulas.

ASSOCIATION: Physikalisch-Technisches Institut der Akademie der Wissenschaften der UdSSR (Institute of Physics and Technology, Academy of Sciences, SSSR); Institut fur Angewandte Physik der Akademie der Wissenschaften der Moldauischen SSR (Institute of Applied Physics, Academy of Sciences, Moldavian SSR); Polytechnisches Institut, Kishinev (Polytechnical Institute)

SUBMITTED: 17Mar65 ENCL: 03 SUB CODE: SS, EC

NO REF SOV: 001 OTHER: 011

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L 61965-65
ACCESSION NR: AP5017939

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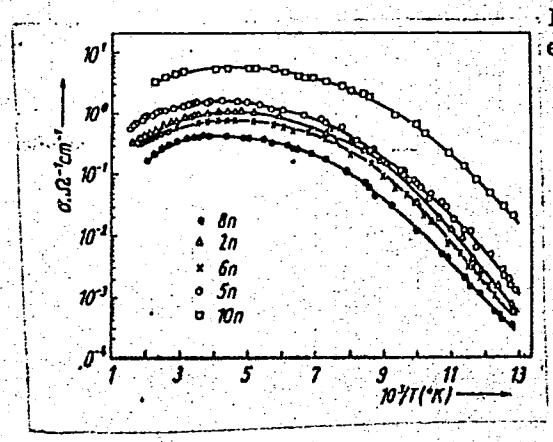

Figure 1. Temperature-dependence of the electrical conductivity in GaP.

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ENCL: 02

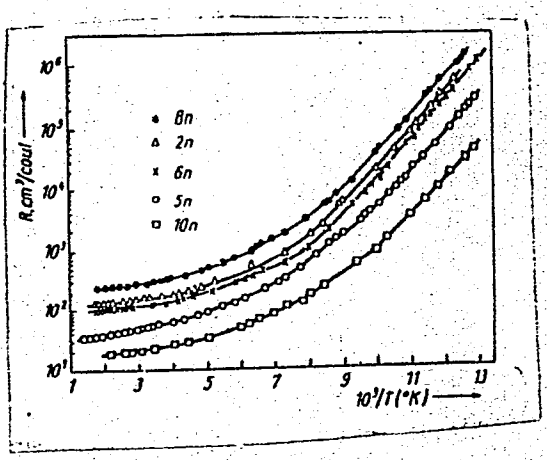

Figure 2. Temperature-dependence of the Hall coefficient in tellurium-doped GaP

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ENCL: 03

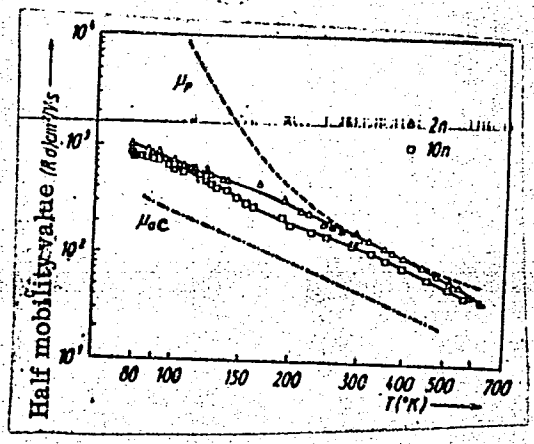

Figure 3. Temperature-dependence of electron mobility for samples 2n and 10n.

------ = calculated mobility for the scattering on polar lattice oscillations
.-.-.- = calculated mobility for the scattering on acoustic lattice oscillations

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L 14126-66 EWT(1)/EWT(m)/EWP(t)/EWP(b) IJP(c) JD/AT

ACC NR: AP6000883 SOURCE CODE: UR/0181/65/007/012/3671/3673

AUTHORS: Nasledov, D. N.; Negreskul, V. V.; Radautsan, S. I.; Slobodchikov, S. V.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR); Institute of Applied Physics AN MSSR, Kishinev (Institut prikladnoy fiziki AN MSSR)

TITLE: Oscillations of photoconductivity in GaP

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3671-3673

TOPIC TAGS: gallium compound, photoconductivity, phonon interaction, energy band structure, carrier density

ABSTRACT: This is a continuation of earlier work (FTT v. 6, 1781, 1964) on the photoconductivity spectrum and the band structure of GaP. In the present investigation, the authors studied GaP samples obtained by gas-transport reactions and doped with tellurium, in the

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L 14126-66
ACC NR: AP6000883

form of trihedral needles. The carrier density was ~6 x 10^{14} cm^{-3} at 296K. The measurements were made at 80 and 296K. Both temperatures, peaks of photoconductivity were observed at approximately 44 and 51 nm, and in addition, regular oscillations were observed at wavelengths lower than 0.40 μ, attributed to strong interactions between the non-equilibrium carriers and longitudinal optical phonons. The results are qualitatively interpreted from the point of view of the band structure of GaP. The complicated nature of this band structure makes a quantitative analysis difficult. The reason why the oscillations were not observed at room temperature is that the over-all photo-response decreases with increasing temperature, owing to the intensification of thermal capture, reduction in the diffusion length of the electrons, and increased rate of surface recombination. The relative roles of the direct and indirect transitions are estimated. Authors thank G. Ye. Pikus and I. N. Yassiyevich for help in discussing the results. Orig. art. has: 2 figures

SUB CODE: 20/ 11/ SUBM DATE: 06Jul65/ ORIG REF: 002/ OTH REF: 005

Card 2/2

L 45296-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AR6017491 SOURCE CODE: UR/0137/66/000/001/I003/I003

AUTHORS: Derid, O. P.; Radautsan, S. I.

TITLE: Phase diagram of alloys in the system In_2Te_3 -- In_2Se_3

SOURCE: Ref. sh. Metallurgiya, Abs. 1I19

REF SOURCE: Sb. Materialy dokl. 1-y Nauchno-tekhn. konferentsii Kishinevsk. politekhn. in-ta. Kishinev, 1965, 68-69

TOPIC TAGS: indium, tellurium, selenium, indium containing alloy, tellurium containing alloy, selenium containing alloy, alloy phase diagram

ABSTRACT: Methods of microscopic, x-ray, and thermal analysis, as well as measurements of microhardness, were used to study and construct the phase diagram for a pseudobinary section of In_2Te_3 -- In_2Se_3 in the system of In-Se-Te. The dependence of Se solubility in In_2Te_3 on the temperature was ascertained, and the ordered state of defects in the solid solutions based on In_2Te_3 was determined. Z. Rogachevskaya. [Translation of abstract]

SUB CODE: 11

Card 1/1

UDC: 669.87'777'776.017.13

L 43322-66 EWA(l)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/WB JG/GG

ACC NR: AR6025151 SOURCE CODE: UR/0058/66/000/004/A074/A074

AUTHOR: Pyshkin, S. L.; Radautsan, S. I. 27 27

TITLE: Influence of certain technological factors on the quality of gallium phosphide crystals grown from a melt solution 41 B

SOURCE: Ref. zh. Fizika, Abs. 4A619

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 30-31

TOPIC TAGS: gallium compound, phosphide, single crystal growing, temperature dependence, crystal dislocation

ABSTRACT: The study of the growth of GaP single crystals from the melt solution with apparatus which makes it possible to regulate the temperature with accuracy ±0.5C in the temperature interval 50 - 1500C has shown that when the regulation accuracy is increased the quality of the single crystal is appreciably improved. The crystals obtained have highly perfect cleavage planes, low dislocation density, and dimensions that are 2 - 3 times larger than for crystals obtained under analogous conditions, but with a regulation accuracy ±5°. The percentage of large crystals relative to the total number of obtained crystals is greatly increased. The crystals reach 25 mm in length and have a dislocation density 10^3 cm^{-2}. [Translation of abstract]

SUB CODE: 20

1/1

ACC NR: AR6030491 SOURCE CODE: UR/0275/66/000/006/B013/B013

AUTHOR: Pyshkin, S. L.; Radautsan, S. I.

TITLE: Effect of some processing factors upon the quality of GaP single crystals grown from a solution-melt

SOURCE: Ref. zh. Elektronika i yeye primeneniya, Abs. 6B87

REF SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 30-31

TOPIC TAGS: gallium ~~phosphide semiconductor~~ compound, single crystal growing, semiconductor research, phosphide

ABSTRACT: The effect of accuracy of furnace temperature control, crystal annealing in various media, and other processing factors upon the physical properties of produced crystals was investigated. With a temperature-control accuracy of ± 0.5C, within 50--1500C, better crystals were produced than with an accuracy of ± 5C. The crystals were up to 25 mm long and had a dislocation density of 1000 per cm². I.B. [Translation of abstract]

SUB CODE: 20

Card 1/1 UDC: 621.315:592:548.552:546.18'681

ACC NR: AP6019284 SOURCE CODE: GE/0030/66/015/002/K105/K108

AUTHOR: Zhitar, V.; Oksman, Ya.; Radautsan, S.; Smirnov, V.

ORG: Institute of Applied Physics, Academy of Sciences, MSSR; Kishinev Polytechnical Institute

TITLE: Some photodielectric and luminescent properties of new semiconducting single crystals of the $Zn_3In_2S_6$ phase

SOURCE: Physica status solidi, v. 15, no. 2, 1966, K105-K108

TOPIC TAGS: semiconductor single crystal, semiconductor conductivity, luminescent crystal, sulfide, indium compound, zinc sulfide, photoelectric property, forbidden zone width, photoconductivity

ABSTRACT: Basic differences are shown to exist between the properties of $Zn_3In_2S_6$ crystals and those of $ZnIn_2S_3$. Earlier studies of this new semiconductor phase of the $ZnS-In_2S_3$ system have been reported by the authors (*Izv. Akad. Nauk MSSR*, 2, 9, (1965)). The photodielectric and luminescent properties of the crystals were studied in order to determine the width of the forbidden zone and the position of extrinsic levels. The width of the forbidden zone (2.76-2.82 ev) determined by the photodielectric method agreed with measurements made by optical absorption methods. The optical quenching spectrum of the photoconductivity and the spectral distribution of the pho-

Card 1/2

ACC NR: AP6019284

toluminescence were also measured at temperatures of 295°K and 77°K. Quenching maxima occurred at 604 and 550 nm and photoluminescence maxima at 1.83 and 2.06 ev. Orig. art. has: 3 figures.

SUB CODE: 20,11/ SUBM DATE: 25Apr66/ ORIG REF: 008/ OTH REF: 002

Card 2/2

ACC NR: AP7001973 SOURCE CODE: GE/0030/66/018/002/0677/0682

AUTHOR: Molodyan, I. P.; Nasledov, D. N.; Sidorov, V. G.; Radautsan, S. I.

ORG: [Nasledov; Sidorov] A. F. Ioffe Physicotechnical Institute, Academy of Sciences, USSR, Leningrad; [Molodyan] Institute of Applied Physics, Academy of Sciences of the Moldavian SSR, Kishinev; [Radautsan] Kishinev Polytechnical Institute

TITLE: The effective mass of electrons in $(InSb)_x \cdot (InTe)_{1-x}$ Crystals

SOURCE: Physica status solidi, v. 18, no. 2, 1966, 677-682

TOPIC TAGS: mixed crystal, indium compound, indium antimonide, indium telluride, effective electron mass, band structure, electron density, temperature dependence, antimonide, telluride

ABSTRACT: The paper deals with changes in the band structure due to transition from doped InSb to its solid solutions with InTe and analyze the variation of the electron effective mass in $(InSl)_x \cdot (InTe)_{1-x}$ with composition (x), concentration of electrons, and temperature. Based on the measurements of the thermoelectric power, transverse Nernst-Ettinghausen effect, conductivity, and Hall effect, the concentration and temperature dependence of the electron effective

Card 1/2

ACC NR: AP7001973

mass m* were calculated for crystals of the solid solution $(InSb)_x(InTe)_{1-x}$ (for x = 1 to 0.85) in the temperature range 100 to 370K. Solid solutions having $x > 0.99$ (I) behave like InSb doped with tellurium, and crystals of this type having electron concentrations (n) greater than $2 \times 10^{18} cm^{-3}$ show an m* (n) dependence which differs from that predicted by Kane. Solid solutions with $x \leq 0.99$(II) show a different temperature dependence of m* from those with $x > 0.99$. The authors thank O. V. Emelyanenko for his useful discussions. Orig. art. has: 5 figures, 4 formulas and 2 tables. [Based on authors' abstract] [DW]

SUB CODE: 20/SUBM DATE: 09Sep66/ORIG REF: 007/OTH REF: 011/

Card 2/2

KHRISHCHENOVICH, kh.; RADAVICHYUS, E. [Radavicius, E.]; KALININ, I.; RYCHKOV, A.; MYANDMAA, E. [Mandmaa, E.]; IL'IN, V.

Increase the scope of efficiency work in financial organs. Fin. SSSR 37 no.1:62-68 Ja '63. (MIRA 16:2)

1. Predsedatel' komissii po ratsionalizatorskim predlozheniyam Ministerstva finansov Belorusskoy SSSR (for Khrishchenovich). 2. Predsedatel' komissii po ratsionalizatorskim predlozheniyam Ministerstva finansov Litovskoy SSR (for Radavichyus). 3. Predsedatel' komissii po ratsionalizatorksim predlozheniyam Leningradskogo oblastnogo finznsovogo otdela (for Kalinin). 4. Predsedatel' komissii po ratsionalizatorskim predlozheniyam Tomskogo oblastnogo finansovogo otdela (for Rychkov). 5. Predsedatel' komissii po ratsionalizatorskim predlozheniyam Ministerstva finansov Estonskoy SSR (for Myandmaa). 6. Predsedatel' komissii po ratsionalizatoskim predlozheniyam pri Ministerstve finansov Chuvashskoy ASSR (for Il'in).

(Finance) (Suggestion systems)

RADAY, Odon

An account of an expedition to South China. Term tud kozl 5 no.2: 87-88 F '61.

RADAY, O.

Light under water. Nauka i zhyttia 12 no.5:49-51 My '62.
(MIRA 15:7)
(Photography, Submarine)

VLASOV, S.N., laureat Leninskoy premii; DERBISHER, A.V., kandidat tekhnicheskikh nauk; RADAYEV, M.V., kandidat tekhnicheskikh nauk.

Take into consideration the characteristics of industrial production in automatizing the course of production. Mashinostroitel' no.7:17-21 Jl '57. (MLRA 10:8)
(Automatic control) (Assembly-line methods)

RADAYEV, M.V., kand.tekhn.nauk

Additional hidden potentials in machinery plants.
Mashinostroitel' no.3:45-46 Mr '60. (MIRA 13:6)
(Machinery industry)

SOV/137-58-7-14033

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 7 (USSR)

AUTHORS: Abramov, N., Radayev, V., Abramov, D.

TITLE: Complex Utilization of the Ores of the Aktyuz Deposit (Kompleksnoye ispol'zovaniye rud Aktyuzskogo mestorozhdeniya)

PERIODICAL: Prom. Kirgizii, 1957, Nr 2-3, pp 11-15

ABSTRACT: A brief description is provided of the work of scientific research institutions toward complex utilization of the ores of this deposit. The 1948-1955 ore-dressing flowsheet, flowsheets for flotation-and-gravitational production of Sn concentrate, Mo middlings, and a concentrate containing "R" are presented.

A. Sh.

1. Ores--Processing 2. Scientific research--Applications

Card 1/1

AKHMEDZYANOV, R.B., zasluzhennyy vrach RSFSR; NAUMTSEVA, A.G.; RADAYEV, V.P.; IVANOV, Yu.M.

Defects of posture and scoliosis. Ortop., travm. i protez. 26 no.2:74 F '65. (MIRA 18:5)

1. Adres avtorov: Kuybyshev (obl.), Polevaya ulitsa, dom 80, Bol'nitsa imeni Pirogova.

PADAYEV [illegible]

USSR

Myekhanichyeskaya shchyetka S aspiratsiyey. (Konstruktsiya vsyesoyuz. Nauch - isslyed. In-Ta shvyeynoy prom-sti). Lyegkaya prom-stv. 1949, No 8. S. 30-31

SO: LETOPIS No. 34

RADAYEVA, I. A.: Master Agric Sci (diss) -- "The effect of sunflower cake and corn silage in the rations of cows on the quality of dried milk". Moscow, 1958. 17 pp (Moscow Order of Lenin Agric Acad im K. A. Timiryazev), 110 copies (KL, No 7, 1959, 127)

RADAYEVA, I.A., mladshiy nauchnyy sotrudnik

How sunflower seed meal and corn silage in cattle rations affect the quality of dried milk. Izv.TSKhA no.2:101-108 '59.
(MIRA 12:8)

(Corn(Maize)) (Sunflower seed) (Milk, Dried)

RADAYEVA, V.N., inzh.

Setting up rows of underpinnings. Put' i put.khoz. no.1:33 Ja '59. (MIRA 12:2)
(Railroad bridges--Maintenance and repair)

RADAYEVA, Z.M.

LAPSA, A.M., agronom; RADAYEVA, Z.M., agronom.

Hundred centners of pork per hundred hectares. Nauka i pered. op. v sel'khoz. 7 no.10:15-17 O '57. (MLRA 10:11)
(Swine--Feeding and feeding stuffs)

RADAYEVA, Z.M., nauchnyy sotrudnik; ROMANOVICH, Ye.F., red.; DEYEVA, V.M., tekhn.red.

[Advanced animal husbandry of Baltic States] Peredovoe v zhivotnovodstve Pribaltiki. Sost. Z.M.Radaeva. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. 214 p. (MIRA 12:9)

1. Latviyskiy nauchno-issledovatel'skiy institut gidrotekhniki i melioratsii.
(Baltic States--Stock and stockbreeding)

RADAYEVA, Z., agronom

All the work on the farm is mechanized. Nauka i pered.op.v sel'-khoz. 9 no.1:54-57 Ja '59. (MIRA 13:3)
(Farm mechanization)

RADAYEVA, Z., nauchnyy sotrudnik

When machinery is in skilled hands. Nauka i pered. op. v sel'khoz 9 no.10:12-16 O '59 (MIRA 13:3)

1. Latviyskiy nauchno-issledovatel'skiy institut gidrotekhniki i melioratsii.
(Agricultural machinery)

KADAYEVA, Z.M.; VOLBERGS, K.[translator]; GULBIS, V., red.

[Specialization and development of dairy husbandry on the state farms of the Latvian S.S.R.] Piena lopkopibas specializacija un attistiba Latvijas PSR padomju saimniecibas. Riga, Latvijas Valsts izd-ba, 1963. 143 p. [In Latvian]
(MIRA 17:6)

RADAYKIN, L. K.

137-58-5-9456

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 92 (USSR)

AUTHORS: Mitrenin, B.P., Lalykin, S.P., Savrasov, Yu.P., Radaykin, L.K.

TITLE: Employment of Floating-zone Refining to Produce Single Crystals of Silicon (Primeneniye bestigel'noy zonnoy plavki dlya polucheniya monokristallov kremniya)

PERIODICAL: V sb.: Vopr. metallurgii i fiz. poluprovodnikov. Moscow, AN SSSR, 1957, pp 35-40

ABSTRACT: The melts were made in an apparatus consisting of a vertical quartz tube (d=22 mm) in which a Si bar was placed vertically on two pins rotating at 1 to 50 rpm. The inductor (d=25 mm, height 4-6 mm) creating the zone was fed from a 5-kv generator working at 4 mc. The rate of motion of the bar relative to the inductor was 0.5-10 cm/hr. A vacuum of the order of $1\text{-}10^{-5}$ mm Hg was created in the quartz tube. The specimen was heated to 700°C by current passing through it. Elongated bars 15-20 cm long and 10-13 mm in cross section, and specimens of Si iodide in the form of tubes 8-16 mm in diameter, filled with pieces of Si, were used for the melts. The quartz tube was replaced after 3 to 5

Employment of Floating-zone (cont)

passes due to the growth within it of a film that screened the field. When an asbestos cylinder ~5 cm long was mounted on the tube for purposes of heat insulation in the vicinity of the inductor, checking and crumbling of the film diminished. The course of the melt was followed visually after the first pass and thereafter by instruments. Single crystals were obtained from the superheated zone after 4 to 7 passes when the rate of motion of the zone was 3-6 cm/hr. The employment of single-crystal seeding and rotation of the specimen facilitates production of single crystals. It was established that 6 to 8 passes of the zone make it possible to purify acid-washed Si until it is spectrally pure for 60-80% of the total length of the specimen, but the resistivity of the specimen rises little as this occurs, viz., from 0.05 to 0.08 ohm/cm. Floating zone refining of a specimen of Si with introduction of Ta^{182} into the final zone makes it possible to purify the specimen of Ta to 10^{-5}-10^{-8}% after 1 to 7 passes of the zone. The Ta is concentrated in the final portion of the bar. The concentration of Fe^{59} after the first pass drops to 10^{-4}%, and the Fe is concentrated in the final zone. Si iodide yielded single crystals that were chiefly of the p type and had a resistivity of 15-40 ohm/cm.

Yu. Sh.

1. Single crystals--Growth 2. Single crystals--Resistivity
3. Silicon iodide--Applications 4. Tantalum isotopes (Radioactive)--Applications
5. Iron isotopes (Radioactive)--Applications

Card 2/2

S/063/62/007/005/005/006
A057/A126

AUTHORS: Kovyrzina, K.A., Radaykina, L.A., Baroni, Ye.Ye.

TITLE: Synthesis of 5-stilbenyl-1,3-diphenyl-Δ^2-pirazoline

PERIODICAL: Zhurnal vsesoyuznogo khimicheskogo obshchestva imeni D.I. Mendeleyeva, v. 7, no. 5, 1962, 592 - 593

TEXT: A method for the synthesis of 5-stilbenyl-1,3-diphenyl-Δ^2-pirazoline (II) from n-3-[1-phenylpropenone-(1)]-stilbene (I) is described. The investigation was carried out in order to synthesize a new luminescent heterocyclic compound with high efficiency as an admixture to plastic scintillators, having a pronounced fluorescence in the range of about 4,500 Å. Compound (I) is prepared by condensation of stilbenaldehyde with acetophenone: 1.6 g stilbenaldehyde is dissolved in 110 ml alcohol, 1.8 g acetophenone and 1 ml 10% NaOH added, the turbid solution left to stand at room temperature for two days, and afterwards the precipitated (I) is filtered off, washed, dried, and recrystallized with acetone. The final product (II) is prepared by dissolving 4.2 g (I) in 700 ml of an alcohol/benzene mixture (6 : 1), subsequent addition of 2.1 ml freshly distilled phenylhydrazine, 2.1 ml conc. HCl and the condensation is carried out at 90 - 95°C during 28 h

Synthesis of 5-stilbenyl-1,3-diphenyl...

under stirring. After washing of the precipitate and recrystallization, (II) is obtained with a 96% yield, showing an absorption spectrum in dioxane ($C = 10^{-3}$ mole/l) with $\lambda_{max.}$ 3,100 Å ; $\epsilon = 63,400$; $\lambda_{max.}$ 3,600 Å ; $\epsilon = 20,992$.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN GruzSSR (Physico-Technical Institute AS GruzSSR)

SUBMITTED: January 25, 1962

Card 2/2

L 47339-66 EWI(l)/EWT(m)/T/EWP(t)/ETI IJP(c) WW/JD/JG

ACC NR: AR602576 SOURCE CODE: UR/0058/66/000/004/A076/A076

AUTHOR: Zhitar', V. F.; Goryunova, N. A.; Radaytsan, S. I.

TITLE: Growth of single crystals from the gas phase in the zinc-indium-sulfur system

SOURCE: Ref. zh. Fizika, Abs. 4A638

REF. SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 9-10

TOPIC TAGS: single crystal growing, zinc containing alloy, indium containing alloy, sulfide, antimonide, uniaxial crystal, transport phenomenon

ABSTRACT: Conditions are developed for obtaining single crystal plates of the chemical compounds $ZnIn_2S_4$(I) and Zn_2Sb(II) by the method of gas-transport reactions using iodine as the carrier. The maximum dimensions of the obtained plates are 18 x 12 mm for I and 12 x 7 mm for II at ~ 0.1 mm thickness. The investigated ternary sulfides, and also their initial binary compounds, could be obtained by combining the synthesis reaction and the single-crystal growth reaction from the gas phase. To this end, initial elements of high degree of purity were used in a specified stoichiometric ratio. Crystals of compound II are optically uniaxial and have photoelectric properties. The possibility of applying the method of chemical transport reactions for doping I

Card 1/2

L 47339-66

ACC NR: AR6025762

0

and II with Cu and Ag is investigated. [Translation of abstract].

SUB CODE: 20

Card 2/2 pb

RUMANIA/Zooparasitology. Parasitic Protozoa. G

Abs Jour: Ref Zhur-Biol., No 17, 1958, 76910.

Author : Ciuca, M.; Radazovici, E.; Chelarescu, M.; Atanasiu, M.; Isfan, T.; Constantinescu, P.; Teriteanu, E.; Gima, I.; Scarlat, M.; Constantinescu, G.; Tautu, L.

Inst :

Title : Study of Duration of Infestation of Plasmodium vivax, Plasmodium falciparum and Plasmodium malariae (Preliminary Report).

Orig Pub: Bul. stiint. Sec. med., 1956, 8, No 2, 549-564.

Abstract: Observations of natural infection were conducted on 105 patients (97 - with Pl. vivax, 7 - with Pl. falciparum and one - with Pl. malariae), and with experimentally-induced malaria in 73 patients (40 - with Pl. vivax, 32 - with Pl. falciparum and one -

Card : 1/2

Card : 2/2

RADBA, Rudolf

Defects of telephone devices for carrying current Z8, FAO and MEK8. Zel dop tech 9 no.9:280-281 '61.

(Telephone)

RADBA, R.

Operational experience with dispatching connections equipped with inductive selection. Zel dop tech 10 no.7:211-212 '62.

30207

S/081/61/000/019/033/085
B110/B138

5.3700

AUTHORS: Aleksandrov, Yu. A., Radbil', B. A., Shushunov, V. A.

TITLE: Oxidation of organometallic compounds. 4. Oxidation of hexaethyl ditin with oxygen

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 19, 1961, 145, abstract 19Zh45 (Tr. po khimii i khim. tekhnol. (Gor'kiy), no. 3, 1960, 388-393)

TEXT: The oxidation of hexaethyl ditin (I) with oxygen (II) in n-nonane solution at concentrations of I ranging from 10 to 100 mole% has been studied. The oxidation rate of I is described by a first-order equation according to the concentration of I, and is independent of the pressure of II within the range of 300-500 mm Hg. In the temperature range of 60-90°C, E(act.) is 19.5 kcal/mole. 0.55 mole of diethyl stannic oxide, 0.62 mole of triethyl stannic oxide, and 0.12 mole of acetaldehyde are formed per mole of oxidized I. Water was found qualitatively. The oxidation of I is not catalyzed by addition of 13.2 mole% of triethyl lead oxide. Addition of 2,6-di-tert-butyl-4-methyl phenol lowers the

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30207

S/081/61/000/019/033/085
B110/B138

Oxidation of organometallic...

reaction rate to approximately one-tenth, which is indicative of a chain mechanism of the reaction. [Abstracter's note: Complete translation.]

X

Card 2/2

RADBIL', O.O.

TUROVA, A.D., professor; RADBIL', O.O., kandidat meditsinskikh nauk

Cardiovalen. Sov. med. 18 no.10:38 O '54. (MLRA 7:11)
(CARDIOVASCULAR DISEASES, therapy,
mixture of various drugs cardiovalen)

RADBIL', O. S.

Radbil', O. S. "Material on the problem of endogenous A-hypovitaminosis," Trudy Kazansk. gos. in-ta usovershenstvovaniya vrachey im. Lenina, Vol. XI, 1949 (on cover: 1948), p. 111-35.

SO: U- 3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 17, 1949).

RADBIL', O.S. and GORDON, O.L.

"Influence of Vagotomy on the Course of Peptic Ulcer and on Gastric Function."

*
/Terap. Arkh./ 22, No. 1 70 -77, Jna.- Feb., 1950. 1 fig.

Nine patients were followed up for 7 to 30 manths after vagotomy. Neutral gastrion was diminished, but humoral secretion was normal, except that the gastric juice showed low acidity. Defective emptying of the stomach may cause stagnation, even after 2½ years. Diarrhoea was common. In general the results of vagotomy corresponded to those obtained with experimental animals.

Jeffrey Boss

Abstacts of World Medicine. Vol. 8 1950.

RADBIL', O.S.

Therapeutic diet in peptic ulcer following gastroenterostomy and resections. Feldsher & akush. no.2:37-44 Feb 51. (CLML 20:8)

1. Candidate Medical Sciences.