COUNTRY   :   [illegible]

CATEGORY   ·   [illegible] ... [illegible] Insects.
                   [illegible] Insects and [illegible].

ABS. JOUR.   :   RZhBiol., No. 3, 1958, No. 10513

AUTHOR   :

INST.   :

TITLE   :

ORIG. PUB.   :

ABSTRACT   :   the dust in the tank of the [illegible] is exactly sufficient to dust
                   7 ha; 2) To select carefully the plots to be treated, plot
                   them on a map and mark according to the [illegible]; 3) to
                   reduce time for unproductive flights by laying out auxil-
                   iary landing strips. Inasmuch as the [illegible] can fly to the base
                   for the night, the necessity of the quarters for the crew
                   is eliminated. Only a storehouse for the poison chemicals
                   is required; 4) to reduce the time of loading an airplane
                   from 3-5 to 1-1½ minutes by means of appropriate devices,
                   packaging the poison chemicals in 25 kg lots, creation of

Card: 1/3

17

COUNTRY   : POLAND
CATEGORY   : General and Specialized Zoology.   Insects.   P
              Harmful Insects and Acarids.
              Referat., No. 6, 1958, No.16283.

AUTHOR   :
INST.   :
TITLE   :

ORIG. PUB. :

           : An unloading brigade of 6-7 men to 5 a. Full utilization
              of the flight class. In 1958, the maximum daily productiv-
              ity of a reached up to 175 ha, but the average productivity
              in Yroslavskiy squadron comprised 66.7 ha and in Jelenio-
              gorskiy squadron - 41.3 ha. -- B. P. Dovnar-Zapol'skiy

Card: 3/3

WITKOWSKI, Witold; KADLUBOWSKI, Wiktor; KARCZEWSKI, Benedykt

Studies on the chemical control of the alder tree weevil
(Cryptorrhynchus lapathi L.) Col. Curc. Prace nauk roln
i lesn 17 no.3:585-608 '65.

1. Institute of Plant Protection, Poznan, and Department of
Forest Protection of the School of Agriculture, Poznan.

_____
_____, Given Names

Country: Poland

Academic Degrees: /not given7

Affiliation: /not given7

Source: Warsaw, Medycyna Weterynaryjna, Vol XVII, No 6, June 1961, p 352.

Data: "Reposition of Prolapsed Small Intestines in a Stallion During
    Castration."

GPO 981643

POLAND/General and Specialized Zoology - Insects. Biology and   P
               Ecology.

Abs Jour   : Ref Zhur Biol., No 6, 1959, 25383

Author   : Karczewski, J.
Inst   : -
Title   : Buckthorn (Thamnus frangula) and Tachina Flies.

Orig Pub   : Polkic pismo entomol., 1958, B, No 5, 5-12

Abstract   : The blossoms of the alder buckthorn Rhamnus frangula
              are visited by numerous insects, in particular by Tachina
              flies. (The blossoms serve as the source of supplementa-
              ry food.) A list of flies visiting the buckthorn (among
              them 41 species of Tachina flies) and a list of insects
              parasitic to some flies are given.

Card 1/1

- 2 -

KARCZEWSKI, J.

KARCHEVSKIY, Yaroslav [Karczewski, Jaroslaw]

  Workers' participation in industrial management. Vsem.prof.
dvizh. no.12:37-38 D '58.   (MIRA 12:1)
   (Poland--Employees representation in management)

KARCZEWSKI, J.

Telegraphic distortions. Pt. 2. p. 134.

PRZEGLAD KOLEJOWY ELEKTROTECHNICZNY. (Wydawnictwa Komunikacyjne) Warszawa,
Poland, Vol. 11, no. 5, May 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 1, Jan. 1960.

Uncl.

KARCZEWSKI, J.

Good functioning of a telegraphic network depends on the good technical condition of the Teletype. p. 73.

PRZEGLAD KOLEJOWY ELEKTROTECHNICZNY. (Wydawnictwa Komunikacjne) Warszawa, Poland, Vol. 11, No. 3, Mar. 1959.

Monthly List of East European Accessions (EEAI) IC, Vol. 9, No. 2, Feb. 1959. Uncla.

KARCZEWSKI, Jerzy, mgr inz.

Application of teletyping devices for the transmission of
train formation diagrams.   Przegl kolej elektrotech 13
no.6:185-191 Je '61.

KARCZEWSKI, Jerzy, mgr.,inz.

Driving installations in the long distance teleprinter "Teletype".
Przegl kolej elektrotechn 13 no.7:210-215 '61.

KAMINSKI, Zdzislaw, mgr inz.; KARCZEWSKI, Jerzy, mgr inz.

The transmitter of the "TELETYPE" teleprinter. Przegl
koloj elektrotech 14 no.2:42-47 F '62.

KAMINSKI, Zdzislaw, mgr., inz.; KARCZEWSKI, Jerzy, mgr., inz.

Regulation of the transmitter of the "Teletype" teleprinter. Przegl
kolej elektrot 14 no.4:115-119 Ap '62.

KAMINSKI, Zdzislaw, mgr inz.; KARCZEWSKI, Jerzy, mgr inz.

Drive control of the "TELETYPE" teleprinter. Przegl
kolej elektrotech 14 no.1:20-23 Ja '62.

KAMINSKI, Zdzislaw, mgr inz.; KARCZEWSKI, Jerzy, mgr inz.

The receiver of the "TELETYPE" teleprinter. Przegl kolej elektrotech 14 9.6:168-173 Je '62.

KAMINSKI; Zdzislaw, mgr inz.; KARCZEWSKI, Jerzy, mgr inz.

Regulation of the Teletype teleprinter receiver. Pt.1. Przegl
kolej elektrotech 14 no.10:303-309 O '62.

KAMINSKI, Zdzislaw, mgr inz.; KARCZEWSKI, Jerzy, mgr inz.

Regulation of the TELETYPE teleprinter receiver. Pt. 2. Przegl
kolej elektrotech 14 no.12:378-382 D '62.

KAMINSKI, Zdzislaw, mgr inz.; KARCZEWSKI, Jerzy, mgr inz.

Maintenance of teletype teleprinters. Przegl kolej
elektrotech 15 no.2:44-48 F '63.

KARCZEWSKI, Jerzy, mgr inz.

Contemporary development trends of data transmission means and
their collaboration with calculation centers. Przegl kolej elek-
trotech 11 no.1:15-20 Ja '64.

KARCZEWSKI, Jaroslaw

         the name of mankind, for the benefit of mankind; on the program of the Communist Party of the Soviet Union. Praca zabezp spol 3 no.12:8-11 '61.

KARCZEWSKI, Leszek

POLAND

KARCZEWSKI, Leszek; ANDRUSZKIEWICZ, Romuald; STANKIEWICZ, Stefan

    Industrial Instytut of Electronics (Przemyslowy Instytut Elektroniki)

    Warsaw, Przeglad elektroniki, No 8, August 65, pp 462-63.

    "Preparation of Extreme-Purity Sb_2S_3"

KARCZEWSKI, Leszek

POLAND

KARCZEWSKI, Leszek

Industrial Institute of Electronics (Przemyslowy Instytut Elektroniki)

Warsaw, Przeglad elektroniki, No 8, August 63, pp 463-65.

"Preparation of Extreme-Purity HCl and NH_4OH".

KARCZEWSKI, Leszek

POLAND

KARCZEWSKI, Leszek

Industrial Institute of Electronics (Przemyslowy Insty-
tut Elektroniki)

Warsaw, <u>Przeglad elektroniki</u>, No 8, August 63, pp 466-
70.

"Some Problems and New Method of $SbCl_3$ Purification".

KARCZEWSKI, Leszek

POLAND

KARCZEWSKI, Leszek

Industrial Institute of Electronics (Przemyslowy Instytut
Elektroniki)

Warsaw, Przegląd elektroniki, No 8, August 63, pp 472-74.

"Zone Melting of SbCl$_3$".

KARCZEWSKI, Leszek

POLAND

KARCZEWSKI, Leszek

Industrial Institute of Electronics (Przemyslowy Instytut Elektroniki)

Warsaw, Przeglad elektroniki, No 8, August 63, pp 474-75.

"Zone Melting of $Sb(CH_3COO)_2$".

KARCZEWSKI, Leszek

POLAND

KARCZEWSKI, Leszek; STANKIEWICZ, Stefan

Industrial Institute of Electronics (Przemyslowy Instytut Elektroniki)

Warsaw, Przeglad elektroniki, No 8, August 63, pp 476-77.

"Preparation of PbS Thin Layers and Powders by Chemical Methods".

KARCZEWSKI, Leon

A new species of Gasteropoda from the Astartian limestones of Sulejow.
Kwartalnik geol 3 no.4:939-942 '59.   (EEAI 10:1)

1. Zaklad Stratygrafii I.G.
        (Poland--Gastropoda)

KARCZEWSKI, Leon

Stratigraphy-facies problems of the Rauracian and Astartian
in boreholes of the Wojszyce and Klodawa regions. Kwartalnik geol
5 no.4:861-868 '61.

1. Zaklad Stratygrafii, Instytut Geologiczny, Warszawa.

KARCZEWSKI, Leon

     Nerines as index fossils. Przegl geol 10 no.6:288-291 Je '62.

     1. Instytut Geologiczny, Warszawa.

KARCZEWSKI, Leon

Structure, evolution, and stratigrafic importance of the shellfish
of the Rudista order. Kwartalnik geol 6 no.2:387 '62.

1. Zaklad Stratygrafii, Instytut Geologiczny, Warszawa.

KARCZEWSKI, S

KARCZEWSKI, S.

Geological observations of a coast. p. 25. (GEOGRAFIA W SZKOLE, Warszawa, Vol. 8, no.1, Jan./Feb. 1955.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 1, Jan. 1955, Uncl.

KARCZEWSKI, Tadeusz; PIENIAZEK, Jan; WLODARSKI, Gabriel

Studies on the structure of various types of viscose fibers. Polimery
tworz wielk 7 no.12:461-463 D '62.

1. Instytut Wlokien Sztucznych i Syntetycznych, Lodz.

KARCZEWSKI, T.; KOZLOWSKI, W.; LEWASZKIEWICZ, W.; SIEWIERSKA, S.; WLODARSKI, G.

Contribution to the problem of determining the crystallinity of
viscose fibers on the basis of their density. Przegl wlokien 18
no.10:448-449 O '64.

1. Institute of Artificial and Synthetic Fibers, Warsaw.

KARCZEWSKI, Tadeusz; LEWASZKIEWICZ, Weronika; PILICHOWSKA-GWOZDZ,
        Stanislawa

Studies on the structure of viscose rayon fiber. Pt.1.
Polimery tworz wielk 9 no.10:432-435 O '64.

1. Institute of Artificial And Synthetic Fibers, Warsaw.

KARCZEWSKI, W.

Effects of afferent vagal activity recorded on magnetic tape on
the respiration of vagotomized animals. Bul Ac Pol biol 10
no.11:499-500 '62.

1. Pathophysiological Laboratory, Institute of Experimental Pathology,
Polish Academy of Sciences, Warsaw. Presented by L.Paszkiewicz.

Karczewski, Witold

MASLINSKI, Czeslav; KARCZEWSKI, Witold.

Prevention of so-called histamine shock by stimulation of the
brain with electric current; preliminary communication.
Acta physiol. polon 6 no.4:373-376 1955.

1. Z Zakladu Patomorfologii Polskiej Akademii Nauk Kierownik:
prof. dr. L.Paszkiewicz.
      (HISTAMINE, effects,
        exper. shock, prev. by stimulation of brain with electric
        current (Pol))
      (SHOCK, experimental,
        prev. of histamine shock by stimulation of brain with
        electric current (Pol))
      (ELECTRICITY, effects,
        brain stimulation in prev. of exper. histamine shock (Pol))

L 05845-67   JK

ACC NR: AP6031997 *(A)*   SOURCE CODE: PO/0071/66/000/006/0334/0336

AUTHOR: Karczewski, Wojciech--Karchevski, V.

ORG: Poultry Disease Section, Institute of Veterinary Research, Pulawy/ headed by Prof. Dr. Kazimierz Marek (Zaklad Chorob Drobiu Instytutu Weterynarii)

TITLE: Development of the LaSota strain of Newcastle disease virus in the spinal cord of chicks

SOURCE: Medycyna weterynaryjna, no. 6, 1966, 334-336

TOPIC TAGS: veterinary medicine, animal disease, animal virus disease, animal infective disease, Newcastle disease, Newcastle disease vaccine, animal disease therapeutics, Newcastle disease LaSota strain vaccine

ABSTRACT: Tests were made with the lentogenic LaSota strain of Newcastle disease virus to determine whether it can have an adverse effect on one-day-old chicks. It was introduced into the spinal cord, which in birds is known to be particularly sensitive to ND virus. The ND virus multiplied rapidly, but caused no paralytic symptoms. Only traces were left five days after infection. When injected

Card 1/2

L 05845-57

ACC NR: AP6031997

into the brain of chicks, the virus was present in considerable numbers on the first and third days after infection. Further studies are necessary to confirm chick resistance to LaSota strain infection. Orig. art. has: 1 figure and 1 table.

[W.A.50]   [DR]

SUB CODE: 02, 06/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 003/

Card 2/2

POLAND/General Problems of Pathology - Shock.   U.

Abs Jour   : Ref Zhur - Biol., No 2, 1959, 8618

Author   : Karczewski, W.

Inst   : Polish Academy of Sciences

Title   : The Effect of Electric Stimulation of the Brain on
              Histamine Shock in Guinea Pigs. III. Time Factor.

Orig Pub   : Bull. Acad. polon. sci., 1957, Ol. 2, 5, No 9, 317-320

Abstract   : The brain of guinea pigs was stimulated by an electric
              current for 8-14 minutes, and at various intervals they
              were injected L.V. with 0.66 mg/kg of histamine.
              Without electrical stimulation the mortality rate was
              100%. When the histamine was injected 1-3 minutes af-
              ter the stimulation the mortality rate was rediced to
              20-50%. Injection of histamine after 4-6 minutes caused
              the death of 80-90% of the animals; after 7-9 minutes,

Card 1/2

KARCZEWSKI, W,

Effect of cerebral stimulation with electric current on the course of
histamine shock in guinez pigs. I. Respiration and blood pressure.
Acta physiol. polon. 8 no.3:371-373 1957.

1. Z Zakladu Patomorfologii P. A. N. Kierownik: prof. dr L. Paszkiewicz.
        (HISTAMINE, effects,
            exper. shock, eff. of electric brain stimulation on blood
            pressure & resp. responses (Pol))
        (BRAIN, physiology,
            eff. of electric stimulation on blood pressure & resp.
            in exper. histamine shock (Pol))
        (BLOOD PRESSURE, physiology,
            eff. of brain stimulation in exper. histamine shock (Pol))
        (RESPIRATION, physiology,
            same)

POLAND

W. KARCZEWSKI, Pathophysiological Laboratory, Institute of Experimental
Pathology, Polish Academy of Sciences (Pracownia Patofizjologii, Zakład
Patologii Doswiedczalnej, PAN [=Polska Akademia Nauk],) Location not
given.

"Effects of Afferent Vagal Activity Recorded on Magnetic Tape on the
Respiration of Vagotomized Animals."

Abstract [English article]: Normal respiratory rhythm could be
temporarily restored in a vagotomized rabbit if the distal end of the
vagus was stimulated in syntony with previously recorded vagal
impulses resulting from reflex stimulation originating in pulmonary
stretch receptors. Four tracings, 3 references.

3/1

L 30715-66

ACC NR: ' AP6020284   SOURCE CODE: PO/0059/65/019/004/0507/0569

AUTHOR: Karczewski, Witold   (Warsaw)

ORG: Department of Experimental Pathology /headed by Professor, Doctor Z. Ruszewsld/,
PAN, Warsaw (Zaklad Patologii Dowwiadczalnej PAN)

TITLE: Role of the vagus nerve in regulating respiration

SOURCE: Postepy higieny i medycyny doswiadczalnej, v. 19, no. 4, 1965, 507-569

TOPIC TAGS: neurology, neurologic surgery, biologic respiration, neuron

ABSTRACT: On the basis of an analysis of experiments with the effect of
unilateral and bilateral vagotomy on changes in the electric activity of
pulmonary mechanoreceptors and exhalatory and inhalatory neurons of the
vagus nerve in the presence of different stimuli, it is concluded that
vagotomy is a major factor in causing respiratory disturbances (decrease
in the rate and increase in the amplitude of respiration). The vagal
centers coupled with the activity of the pulmonary mechanoreceptors may be
the basic links in the system where each respiratory cycle is compared with
the preceding cycle and, on this basis, the next cycle is optimized in ad-
vance. Orig. art. has: 31 figures. /JPRS/

SUB CODE: 06 / SUBM DATE: 00Dec64 / ORIG REF: 002 / OTH REF: 103
SOV REF: 006

Card 1/1 JV

L 33686-66   EWP(k)/EWP(t)/ETI   IJP(c)   JD/HW
ACC NR: AP6024251   SOURCE CODE: CZ/0034/65/000/010/0723/0729
                                                                    40

AUTHOR: Dusek, Josef (Engineer); Kochanovska, Adela (Professor; Doctor); Wotruba, B
Karel (Doctor); Lasek, Jiri (Engineer)

ORG: [Dusek] Research Institute of Ferrous Metallurgy, Prague (Vyzkumny ustav
hutnictvi zeleza); [Kochanovska; Wotruba; Lasek] Institute of Solid State Physics,CSAV,
Prague (Ustav fyziky pevnych latek CSAV)

TITLE: Effect of inclusions on the initial permeability of hot-rolled transformer
plates

SOURCE: Hutnicke listy, no. 10, 1965, 723-729

TOPIC TAGS: aluminum containing alloy, electric transformer, annealing, metallurgic
furnace, ammonia

ABSTRACT: Hot-rolled transformer
plates containing, respectively, 0.012 and 0.09 percent Al, annealed for a
long time in a tunnel furnace at 820 to 840°C, were subjected to another re-
fining in an atmosphere of pure H and cracked ammonia, at a temperature range
of 700 to 1100°C. A relationship was found between the course of the initial
permeability and the variations in the content and form of structural parti-
cles, particularly iron carbide, aluminum nitride and silicon nitride, in
both the starting state and after refining. The effect of cracked ammonia
on the heats with the higher Al content was found to be very detrimental.
Orig. art. has: 3 figures and 3 tables. [Based on authors' Eng. abst.] [JPRS]
SUB CODE: 11, 13, 09 / SUBM DATE: none / ORIG REF: 001
Card 1/1 PB   UDC: 621.3.002.3: 669.14.018.583

KARCZMARCZYK, E.

Symposium on Electroacoustic Transducers   POL/5981

36. Underwater piezoelectric electroacoustic transducer with a
flat frequency response from 100 Hz to 100 kHz. Zygmunt
Nagiello   353
37. Splitting of ultrasonic pulse in magnetostrictive trans-
ducers fed by overvolting systems. Jerzy K. Skrzela   361
38. Calibration exciter for checking accelerometers. Per V.
Bruel   375
39. Calibrator for phonograph pickups. Zygmunt Komornicki   379
40. Non-reflecting piezoelectric probe and equipment for measur-
ing ultrasonic field intensities in fluids. J. Karpinski and
                                                                385
41. Investigation of the bases of ultrasonic generation in a
flow-type equipment. Boleslaw Lesniak   393
42. Ultrasonic hydrogenerators. C. Wachtl, A. Sigalin, and
E. Karczmarczyk   401
43. Particular case of mechanoelectric transducer applied to
steel construction testing. Stefan Ziomba and Jerzy Kasinski   405

    Card 7/8

Source: Proceedings of the Symposium on Electroacoustic Trandducers (held in)
Krynica, 17-26 September, 1958. Warsaw, Panstwowe Wydawnictwo Naukowe, 1961. 442

KIRCHMAYK, Stanislav, inz.

Trial proceedings and decision making in controversial cases
of invention and rationalization. Fragl teorn 86 no.7:1, 1
in F '5.

KARCZMAREWICZ, Andrzej, mgr inz.

Measuring telegraphic distortions. Przegl telekom 34 no.6:166-170 Je '62.

1. Katedra Telegrafii, Politechnika, Warszawa.

KARCZMARSKI, J.

Journal of the
Institute of
Petroleum
Vol. 40 No. 361
Jan. 1954
Safety Precautions

121. Safety precautions during cleaning of railway tanks.
J. Karczmarski. Nafta (Krakow), 1952, 8, 332-4.—After classi-
fying fluids into toxic, inflammable, and safe groups,
author describes safety precautions and stresses the need
for training all workers who deal with railcars in safety
precautions and hygienic procedure. Importance of correct
diet for cleaners is stressed.   M. S.

KARCZMAPSKI, J.

TECHNOLOGY

PERIODICAL: NAFTA, Vol. 15, no. 1, Jan. 1959.

KARCZMAPSKI, J. Warming oils in cool seasons. p. 18.

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 4
                                  April 1959, Unclass.

KARCZMARZ, K.

"Polish flora; spore plants of Poland and bordering territories"
by B.Safran. Vol. 2: "Mosses". Reviewed by K.Karczmarz.
Kosmos biol 11 no.4:441-443 '62.

KARCZMARZ, K.

Contribution to studies on the flora of Charophyta of the Lublin
region (eastern part of Poland). Pt. 1. Acta soc botan Pol 32
no.1:165-169 '63.

1. Zaklad Systematyki i Geografii Roslin, Uniwersytet Marii Curie-
Sklodowskiej, Lublin.

KARCZMARZ, Kazimierz

"Key to the leaf-bearing Musci of the U.S.S.R. Arctic" by
A.L.Abramowa, L.I.Sawicz-Lubickaja, Z.N.Smirnowa. Reviewed
by Kazimierz Karczmarz. Wiadom botan 7 no.1:83-84 '63.

S/081/63/000/001/031/061
B144/B186

AUTHORS: Szychliński, Jerzy, Karczyński, Felika, Latowska,
                Elżbieta, Pawlak, Zenon

TITLE: Some data on chloro-plumbic acid

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 1, 1963, 111-112,
                abstract 1V5 (Roczn. chem., v. 36, no. 4, 1962, 771-773
                [Pol.; summary in French])

TEXT: It is established that chloro-plumbic acid has the composition
$H_2PbCl_6 \cdot nH_2O$ (I) when obtained by the method described previously
(Friedrich H. "Ber.", 1893, 26, 1434). The acid I dissolves in HCl, but
poorly in CH_3OH and C_2H_5OH, and not at all in C_6H_6 and CCl_4. With
organic solvents, I cannot be extracted from hydrochloric solutions; this
proves the absence of $PbCl_5$ in these solutions. [Abstracter's note:
Complete translation.]

Card 1/1

SZYCHLINSKI, Jerzy; KARCZYNSKI, Feliks; LATOWSKA, Elzbieta; PAWLAK, Zenon

Some remarks on chloroplumbic acid. Rocz chemii 36 no.4:
771-773 '62.

1. Katedra Chemii Fizycznej, Wyzsza Szkola Pedagogiczna, Gdansk.

(

KARCZUN, Maria

Magnetic studies in the region of Gogolow near Swidnica.
Kwartalnik geol 5 no.4:945-946 '61.

1. Zaklad Geofizyki, Instytut Geologiczny, Warszawa.

ACC NR: AP7003550   SOURCE CODE: UR/0023/66/000/004/0504/0510

AUTHOR: Kard, P.

ORG: Tartu State University (Tartuskiy gosudarstvennyy universitet)

TITLE: Inequalities relating the energy coefficients of optical films

SOURCE: AN EstSSR. Izvestiya. Seriya fiziko-matematicheskikh i tekhnicheskikh nauk, no. 4, 1966, 504-510

TOPIC TAGS: optic coating, light reflection, light transmission, light absorption, energy theory, absorption coefficient

ABSTRACT: Making use of results of an earlier paper (Optika i spektroskopiya v. 9, 95, 1960), the author derives equations relating the energy coefficients of reflection, transmission, and absorption of a multiple-layer optical film, and the phases of the reflection and transmission, under conditions which are more general than those previously used by A. R. Cownie (J. Opt. Soc. America v. 53, 425, 1963), especially with respect to energy conservation. The new approach makes allowance for possible negative absorption in the film. Cownie's formulas are derived again for the case of negative absorption, and new formulas are given which hold for the case when the absorption coefficients in all layers of the system have the same sign. Orig. art. has: 36 formulas.

SUB CODE: 20/ SUBM DATE: 11Oct65/ ORIG REF: 001/ OTH REF: 002
Card 1/1

KARD, P., kandidat fiziko-matematicheskikh nauk

On the theory of absorbing optical coatings. Eesti tead akad tehn fuus
9 no.3:250-256 '60. (EEAI 10:3)

1. Tartuskiy gosudarstvennyy universitet.
     (Reflection (Optics))   (Coatings)
     (Absorption of light)

KARD, P.

      Some properties of absorbing optical films. Eesti tead.akad.
tehn.füüs. no.1:10-15 '62.

      1. State University of Tartu. Corresponding member of the
Academy of Sciences of the Estonian S.S.R.

KARD, P.

More about A.Vasicek's formulas. Izv AN Est SSR Ser fiz-mat i
tekh nauk   no.4:340-344 '61.

1. Tartuskiy gosudarstvennyy universitet. Chlen-korrespondent
AN Estonskoy SSR.

KARD, P.

Theory of a Fabry-Perot type clarified light filter. Eesti tead
akad tehn fuus 11 no.3:159-166 '62.

1. Tartu State University. Corresponding member of the Academy
of Sciences of the Estonian S.S.R.

4284

HYDROGEN-LIKE ATOM IN QUANTIZED SPACE. (NON-RELATIVISTIC THEORY). P. Kard. Zhur. Ekspt'. i Teoret. Fiz. 20, 1144-5(1950) Dec. (Letter to the editor, in Russian)

An attempt is made to calculate, nonrelativistically, the energy levels of a hydrogen-like atom in a quantized space by using a modified Schroedinger's integral equation in the space of momenta; the modification is made in order to introduce the elementary length.

KARD, P. G.

USSR/Nuclear Physics - Mass spectrum   FD-804

Card 1/1   Pub. 146-17/21

Author   : Kard, P. G.

Title   : Problem of the mass spectrum of elementary particles

Periodical   : Zhur. eksp. i teor. fiz., 27, 259-260, Aug 1954

Abstract   : Letter to the editor. Suggests a new tentative method for theoretical
               determining of proper masses. Derives equations by considering the
               proper mass of the particle as operator and the fifth coordinate
               canonically bound to the proper mass. Indebted to Prof A. Kipper.

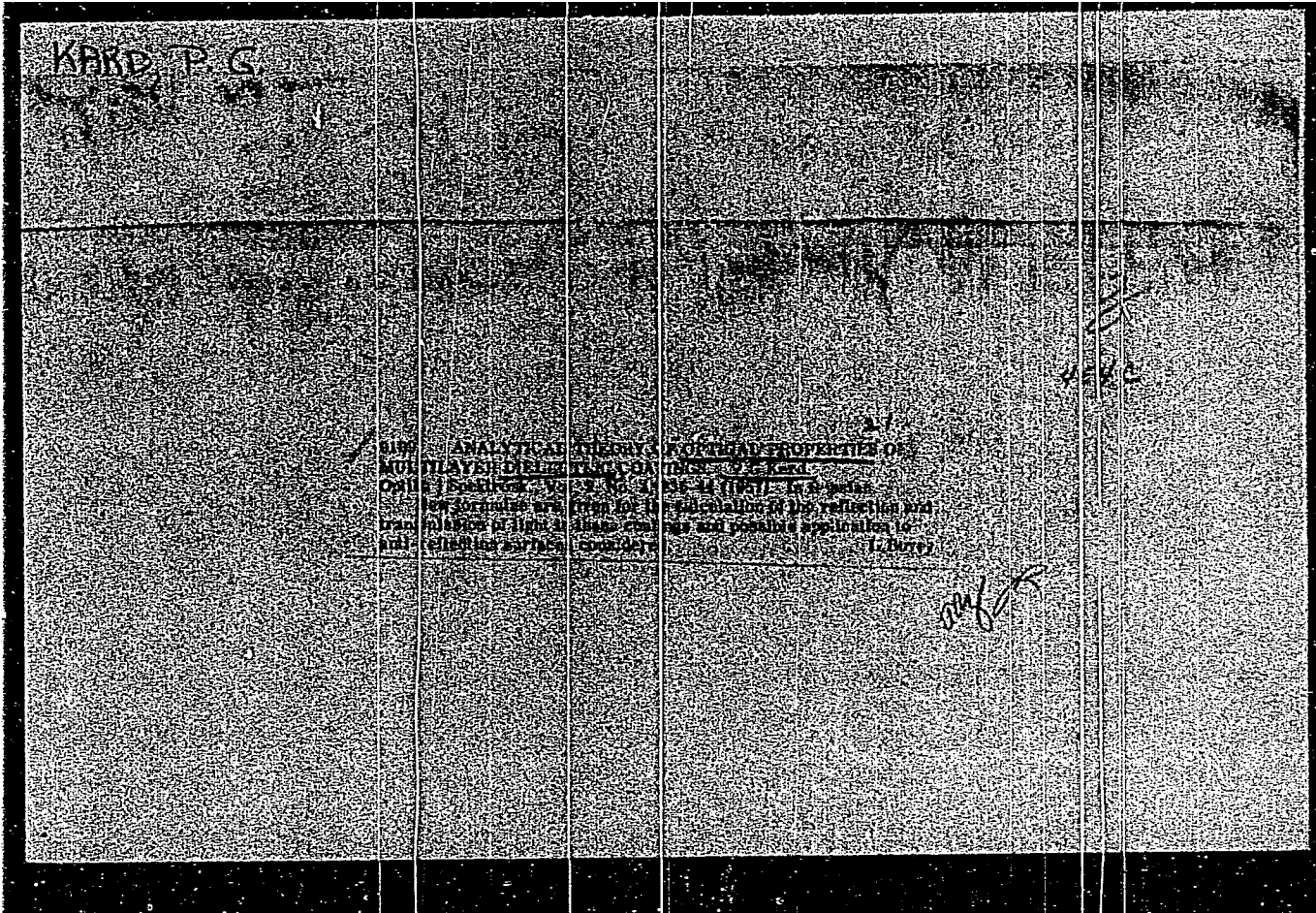Institution : Tartu State University

Submitted   : March 12, 1954

Kard P G.

535.391

VIII 5.   GRAPHICAL METHOD OF CALCULATING MULTI-
LAYER COATINGS.   P.G. Kard

Dokl. Akad. Nauk Est. SSR, Vol. 10, No. 1, 60-8 (1958). In
Russian.

A general formula is developed for calculating the ampli-
tude coefficient of reflection from a coating containing (n + 1)
layers if that for a coating with n layers is known:

$$r_{n+1} = [r_n + a_n \exp(2i\delta_n)]/[1 + a_n r_n \exp(2i\delta_n)],$$

where $a_n = n_n \cos \theta_n$, $k_n = k_0 n_n$, k_0 = wave number in vacuum,
n_n = the refractive index in the n-th layer, δ_n = the thickness
of n-th layer, θ_n = the angle of incidence for the amplitude,
coefficient of reflection equal to r, and a_n = the amplitude
coefficient of reflection at the $(n + 1)$ boundary. A double
net of coordinates (rectangular and polar coordinates within one
circle) makes it possible to find the coefficient of reflection
that a given multi-layer coating at a given angle of incidence θ.
                                                    F. Lachman

KARD, P. G.

9199. ANALYTICAL THEORY OF OPTICAL PROPERTIES OF MULTILAYER DIELECTRIC... Kard.
Optical Spectra, Vol 22, No 4, 335-41 (1967). In a series... formulae are given for the calculation of the reflection and transmission of light in dielectric coatings and possible application to... reflecting surface considered. (Liberty)

KARD, P.G.

Theory of antireflection multilayer coatings. Opt. i spektr. 2
no.2:245-253 F '57.   (MIRA 10:3)

1. Tartuskiy gosudarstvennyy universitet.
            (Reflection (Optics))
            (Glass, Optical)

KARD, P.G.

Analytic theory of multilayer dielectric coatings. Fiz. sbor. no.3:
350-352 '57.   (MIRA 11:8)

1. Tartuskiy gosudarstvennyy universitet.
                (Dielectrics—Optical properties)

Kard, P. G.

AUTHOR: Kard, P. G., **Candidate of Physico-Mathematical Science** 23-4-5/18

TITLE: Theory of Seven-Layer Interference Filters Using Full
              Reflection and Free of the Doublet Structure of Pass Band
              (Teoriya semisloynogo interferentsionnogo svetofil'tra,
              ispol'zuyushchego polnoye otrazheniye i svobodnogo ot
              dubletnoy struktury polosy propuskaniya)

PERIODICAL: Izvestiya Akademii Nauk Estonskoy SSR, Seriya Tekhniches-
              kikh i Fiziko-Matematicheskikh Nauk, 1957, # 4, pp 344-350
              (USSR)

ABSTRACT: There are three-layer interference filters using full
              reflection. The pass band of these filters has the doublet
              structure. It means that the position of the pass band in
              the spectrum depends on the polarization of light (parallel
              or perpendicular to the incidence plane). Two pass bands
              instead of one are obtained, which differ from each other
              by polarization. If one of the bands is suppressed by means
              of the analyzer, the doublet disappears but the light passed
              will be only half as intensive at the peak as the incident
              light. The doublet structure of the pass band is the most
              important defect of the filter with full reflection, however
              in other respects the filter of this type is one of the best.
Card 1/2   The author then presents the theory of interference filter

23-4-5/18

Theory of Seven-Layer Interference Filters Using Full Reflection and Free of the Doublet Structure of Pass Band

with full reflection, the pass band of which is free of doublet structure. To achieve this quality, the number of layers must be increased from 3 to 7.

The article contains 2 figures, 1 English and 2 Russian references.

ASSOCIATION: Tartu State University (Tartuskiy gosudarstvennyy universitet)

SUBMITTED: 26 August 1957

AVAILABLE: Library of Congress

Card ./2

KARD, P.G.

PRIKHOT'KO, A.F.

24(7)   p.3   PHASE I BOOK EXPLOITATION   SOV/1365

L'vov. Universytet

Materialy X Vsesoyuznogo soveshchaniya po spektroskopii. t. 1:
Molekulyarnaya spektroskopiya (Papers of the 10th All-Union
Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy)
[L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies
printed. (Series: Its: Fizychnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po
spektroskopii. Ed.: Jazer, S.L.; Tech. Ed.: Saranyuk, T.V.;
Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased),
Neporent, B.S., Doctor of Physical and Mathematical Sciences,
Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences,
Fabrikant, V.A., Doctor of Physical and Mathematical Sciences,
Kornitskiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M.,
Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K.,
Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S.,
Candidate of Physical and Mathematical Sciences, and Glauberman,
A. Ye., Candidate of Physical and Mathematical Sciences.

Card 1/30

Card 22/60

KARD, P.

Theory of two-component multilayer dielectric coatings.

P. 54, (Uurimused Trudy) No. 5, 1957, Tallinn, Estonia

SO: Monthly Index of East European Acessions (EEAI) Vol. 6, No. 11 November 1957

SOV/23-58-4-3/13

AUTHOR: Kard, P.G., Candidate of Physico-Mathematical Sciences

TITLE: The Theory of Reflection and Transmission of Light by a Thin Metallic Film (K teorii otrazheniya i propuskaniya sveta tonkim metallicheskim sloyem)

PERIODICAL: Izvestiya Akademii nauk Estonskoy SSR, 1958, Nr 4, pp 283-289 (USSR)

ABSTRACT: A. Vashichek /Ref 1 and 4/ proposed a new theory of the reflection and transmission of light by a thin metallic film. This theory differs essentially from the usual one /Ref 6/ in several assumptions, which aim at insuring the law of conservation of energy. Particularly, in the hypothetical case of a total-reflecting metal (with the vanishing real part n_1 of its refractive index), Vashichek claims the totality of reflection irrespective of the thickness d_1 of

Card 1/3   the film. This is a criticism of Vashichek's

SOV/23-58-4-3/13

The Theory of Reflection and Transmission of Light by a Thin
Metallic Film

theory. Firstly, it is shown that the usual
theory is in accordance with the law of conserva-
tion of energy. Thus, a revision is unnecessary.
Further, the new theory is also incorrect in that
there is a discrepancy between it and Maxwell's
electromagnetic theory (which is also in full
agreement with the law of conservation of energy)
Finally, Vashichek's formula for the reflection
of a thin metallic film displays an intrinsic
ambiguity, for in the case of $d_1 \longrightarrow 0$, $n_1 \longrightarrow 0$ its
value depends on the ratio d_1/n_1, i.e. on the way
or approximation to this limit. This result has
obviously no physical sense.

Card 2/3

SOV/23-58-4-3/13

The Theory of Reflection and Transmission of Light by a Thin
Metallic Film

                There are 10 references, 4 of which are Czechos-
                lovakian, 1 French, 2 Soviet, 1 English and 2
                German.

ASSOCIATION: Tartuskiy gosudarstvennyy universitet (Tartu
                State University)

SUBMITTED: July 22, 1958

NOTE: Russian transliteration of names, titles and as-
                sociations are used throughout this abstract.

Card 3/3

AUTHOR: Kard, P.G.   51-4-5-13/29

TITLE: A Theory of an Improved Interference Light Filter with Total
            Reflection (Teoriya uluchshennogo interferentsionnogo svetofil'tra
            s polnym otrazheniyem)

ABSTRACT: Three-layer interference filters described in the published
            literature suffer from a serious disadvantage because the position
            of their transmission band depends on polarization of the incident
            light. If the incident light is unpolarized then the filter has,
            instead of one transmission band, two such bands which differ in
            their polarization. This effect is called the doublet structure of
            the transmission band. A light-filter whose theory is given in the
            present paper consists of two identical glass prisms separated by
            an odd number (greater than three) of layers. The odd layers
            have all the same thickness h_1 and the same low refractive index n_1,
            such that total reflection is possible in these layers. Layers
Card 1/2   with the even number have the same thickness h and the same

51-4-5-13/29

A Theory of an Improved Interference Light Filter with Total Reflection

refractive index n, which is taken to be equal to the refractive index of the prisms. It is shown that a proper selection of the layer thicknesses, refractive indices and the angle of incidence causes the two transmission bands, for the two mutually perpendicular polarizations, to coincide, provided that the number of layers is not less than five. The paper is purely theoretical. There are 8 references, 5 of which are Soviet, 1 American, 1 French and 1 translation of an American book into Russian.

ASSOCIATION: Tartuskiy Gosudarstvennyy Universitet (Tartu State University)

SUBMITTED: July 1, 1957

1. Light filters - Theory   2. Light - Refraction

Card 2/2

SOV/58-59-8-19004

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 277 (USSR)

AUTHOR: Kard, P.G.

TITLE: A Contribution to the Theory of the Optical Properties of Multilayer
             Coatings

PERIODICAL: Uch. zap. Tartusk. un-ta, 1958, Nr 62, pp 169-179 (rez. est., angl.)

ABSTRACT: Simple formulae for $1/d_N$ and r_N/d_N, where r_N and d_N are respectively
             the amplitude coefficients of the reflection and transmission of light
             in the case of an N-layer coating, were found earlier (RZhFiz, 1958,
             Nr 1, 2131) by the matrix method. With the aid of unitary trans-
             formation these formulae are transformed into another form, in which
             they reveal a direct connection with Vlasov's method of recurrence
             formulae.
                                                          P.G. Kard

Card 1/1

Translation from: Referativnyy zhurnal, Fizika, 1961, No. 3, p. 224, # 3G90

AUTHOR: Kard, P. G.

TITLE: ˙   The Method of Variation of Layer Thicknesses of a Translucent
            Optical Coating

PERIODICAL: Uch. zap. Tartusk. un-ta, 1959, No. 74, pp. 56-74 (Estonian and
            English summaries)

TEXT: The quality of a multi-layer translucent coating can be characterized
by magnitude $s = 1 - (\overline{R/D})/(R_0/D_0)$ where R_0 and D_0 are energetic coefficients of
reflection and transmittance of the optical surface without a coating, and R and D
are the same quantities for the coated surface; the dash denotes averaging over
spectrum. Maximum s corresponds to the best translucence. The s is a quadratic form
of quantities, depending only on reflection indices of the layers, with coeffi-
cients depending only on optical thickness of the layers. If coefficients are
given, the determination of s_{max} can be carried out by means of a very simple
graphic construction. The simplicity of these graphs makes it possible, in a

Card 1/2

S/058/61/000/003/004/027
A001/A001

The Method of Variation of Layer Thicknesses of a Translucent Optical Coating

visual manner, to vary coefficients, i. e., thicknesses of the layers with a purpose to obtain the highest possible value of s_{max}. It is shown that the most advantageous ratio of layer thicknesses for a two-layer coating is 1:2 and for a three-layer one it is 1:2:3 or 1:2:1.

P. Kard

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

Card 2/2

SOV/51-6-3-17/28

AUTHOR: Kard, P.G.

TITLE: On Elimination of the Doublet Structure in the Transmission
          Band of a Total-Reflection Light Filter (Ob ustranenii
          dubletnoy struktury polosy propuskaniya svetofil'tra s
          polnym otrazheniyem)

ABSTRACT: In his earlier work (Refs.1,2) the author described a total-
          reflection light filter consisting of three layers (with
          refractive indices n_1, n, n_1) placed between two glass
          prisms. The outer two layers are totally reflecting
          (refractive index n_1). The disadvantage of such a filter
          is that its transmission band has two peaks ("doublet
          structure"). This doublet structure can be eliminated by
          using a larger number of layers, including more than two
          totally reflecting ones (Refs.1,2). The present paper
          describes a simpler arrangement which also eliminates the
          two transmission peaks. This arrangement consists of
Card 1/2 seven layers: each of the two totally reflecting layers

SOV/51-6-3-17/28

On Elimination of the Doublet Structure in the Transmission Band
of a Total-Reflection Light Filter

is placed between two "correcting" layers with refractive
index n_k. The seven layers of the filter can be
represented by their refractive indices as follows:
$n_k n_1 n_k n n_k n_1 n_k$. The condition for the absence of the
doublet structure is given by

$$n_k = (nn_1)^{\frac{1}{2}}. \tag{19}$$

A special case is worked out in detail: for an angle of
incidence $\theta = 60°$, $n = 1.7$, $n_1 = 1.3$, $n_k = 1.487$
(found using Eq.(19)), for zero order of interference and
total-reflection layer thickness $L = \lambda/2n_1$, the
transmission band half-width was found to be $\Delta\lambda/\lambda = 1/1900$.
The paper is entirely theoretical. There are 5 references,
of which 4 are Soviet and 1 French.

Card 2/2

SUBMITTED: April 11, 1958

24(4)   SOV/51-6-4-20/29

AUTHOR: Kard, P.G.

TITLE: On the Effect of Thin Films on the Total Reflection (O vliyanii
               tonkikh plenok na polnoye otrazheniye)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 533-536 (USSR)

ABSTRACT: The author discusses theoretically the effect of a transparent,
               multi-layer film, placed between two media, on the phase shift
               occurring on total (internal) reflection at the boundary between
               these two media. The basic recurrent formula is derived in the form
               suitable for numerical calculations. By way of example, the calculation
               is given for a single and double-layer   film which minimizes the phase
               shift difference between the components polarized and perpendicular to
               the plane of incidence. The paper is entirely theoretical. There are
               1 figure and 3 references, 2 of which are Soviet and 1 French.

SUBMITTED: April 17, 1958

   Card 1/1

S/023/60/000/003/008/012
C111/C222

AUTHOR: __Kard, P.__, Candidate of Physico-Mathematical Sciences

TITLE: On the Theory of the Absorbing Optical Coatings

PERIODICAL: Izvestiya Akademii nauk Estonskoy SSR. Seriya Tekhnicheskikh
            i Fiziko-Matematicheskikh nauk, 1960, No.3, pp.250-256.

TEXT: The theory of optical coating becomes very complicated if one of
the layers or one of the media is absorbing. In the preceding paper (Ref.1)
the author improved the well-known formulas of Vlasov (Ref.2) and obtained
the relations

$$a = a_1 b_2 e^{i\alpha_m} + a_2 \tilde{b}_1^* e^{-i\alpha_m}$$

(1)

$$b = b_1 b_2 e^{i\alpha_m} + a_2 \tilde{a}_1^* e^{-i\alpha_m} \, ,$$

where $a = \dfrac{r}{d}$, $b = \dfrac{1}{d}$, and r,d are the amplitude reflectance and trans-
mittance of the coating. Now the author considers the magnitudes $\widetilde{ab} - \widetilde{ab}$
and $bb^* - aa^*$, where $\sim$ denotes the conjugate coating. It is shown that
these magnitudes depend only on certain (absorbing) layers and on the

Card 1/2

On the Theory of the Absorbing Optical
Coatings

S/023/60/000/003/008/012
C111/C222

backing medium but not on the medium of incidence or certain (not
absorbing) layers. These results are used in order to find those com-
binations of a given coating with other coatings for which the coefficient
of absorption of the combination is smaller than the coefficient of
absorption of the given coating. For a special case the author has
already described the applied method. (Ref.5).
There are 1 figure and 5 Soviet references.

ASSOCIATION: Tartuskiy gosudarstvennyy universitet (Tartu State University)

SUBMITTED: December 9, 1959

Card 2/2

67966

(24,3200

S/023/60/009/01/003/011
D031/D003

AUTHOR: Kard, P., Candidate of Physico-Mathematical Sciences

TITLE: The Theory of Achromatic Multilayer Interference Po-
               larizers γ

PERIODICAL: Izvestiya Akademii nauk Estonskoy SSR, Seriya tekh-
               nicheskikh i fiziko-matematicheskikh nauk, 1960,
               Volume IX, Nr 1, pp 26 - 32 (USSR)

ABSTRACT: A prismatic multilayer interference polarizer con-
               sists of 2 composed glass prisms with a multilayer
               film between them. The parameters of the film, the
               refractive indices of the prisms and the angle of
               incidence should be chosen so as to obtain the reflec-
               tance of the component parallel to the incidence
               plane near to zero, and the reflectance of the compo-
               nent perpendicular to the incidence plane near to
               unity. Thus the polarizer divides the incident beam
Card 1/3   of unpolarized light into two linear polarized beams

67966

S/023/60/009/01/003/011
D031/D003

The Theory of Achromatic Multilayer Interference Polarizers

with equal intensities. In addition, the polarizer
must be achromatic, i.e. it must work in as broad a
spectral interval as possible. The article presents
a theory of the polarizer of this type. It is shown
that if one takes all the layers having equal opti-
cal thicknesses and alternately high and low refrac-
tive indices, one can choose the angle of incidence
and the refractive indices of the prisms in such a
way that the polarizer is greatly effective in the
broad spectral interval (nearly equal to one octave,
i.e. to the whole visible region). In a particular
numerical example the degree of polarization differs
from unity at the most by 0.032 in reflected light
and by 0.025 in transmitted light. One can still more
increase the efficiency of the polarizer of the des-
cribed type by placing additional polarizers of the

Card 2/3

67966
S/023/60/009/01/003/011
D031/D003

The Theory of Achromatic Multilayer Interference Polarizers

same type in the way of reflected and transmitted beams. Such a composed polarizer is analogous to the polarizers of another type consisting of a pile of coated glass plates. There are 1 table and 10 references, of which 6 are Soviet, 1 American, 2 German and 1 French.

ASSOCIATION: Tartuskiy gosudarstvennyy universitet (Tartu State University)

SUBMITTED: September 8, 1959

Card 3/3

KARD, P.G.

New recurrent formulas in the theory of multilayer optical
coatings. Opt.i spektr. 9 no.1:95-100 Jl '60.
(MIRA 13:7)

(Optics, Physical)

KARD, P.G.

Theory of the transparency of metal coatings. Opt. i spektr. 9
no.2:248-252 Ag '60.   (MIRA 13:8)
(Metallic films--Optical properties)

83368
S/051/60/009/003/006/011
E201/E591

6.3400

AUTHOR: Kard, P.G.

TITLE: Fundamentals of a Theory Dealing with Synthesis of Absorbing
Antireflection Coatings

PERIODICAL: Optika i spektroskopiya, 1960, Vol. 9, No. 3, pp. 386-393

TEXT: The author introduced recently (Ref. 1) a concept of conjugate coatings
in the theory of prevention of reflection at optical surfaces.   Two coatings
are called conjugate if the complex refractive indices of all the layers and
outer media of one coating are complex conjugates of the corresponding refractive
indices of the other coating (layer thicknesses are the same in both coatings).
The light is assumed to be incident normally on the coating.   In the present
paper the author discusses coatings consisting of several absorbing layers
separated by transparent layers.   The necessary and sufficient conditions are
found which the coating should obey in order to have antireflection properties.
The number, distribution, thicknesses and optical constants of absorbing
layers are assumed to be fixed and   antireflection conditions are taken to

Card 1/2

83368
S/051/60/009/003/006/011
E201/E691

Fundamentals of a Theory Dealing with Synthesis of Absorbing Antireflection Coatings

apply to parameters of transparent layers. It is shown that antireflection properties are governed primarily by the absorbing layers and a simple expression representing this fact is obtained. The paper is entirely theoretical. There are 1 figure and 3 Soviet references.

SUBMITTED: November 28, 1959

Card 2/2

KARD, P.G.

      Theory of multilayer asymmetric reflectors. Opt.i spektr. 10
no.3:384-389 Mr '61.   (MIRA 14:8)
                    (Reflection (Optics))

KARD, P.G.

Optical reversibility principle and its application in the
theory of thin-layer coatings. Opt. i spektr. 11 no.2:237-
241 Ag '61.   (MIRA 14:8)
             (Refraction)
             (Absorption of light)

24,3700

S/023/62/011/001/001/002
D237/D301

AUTHOR: Kard P., Corresponding Member of the AS EstSSR

TITLE: Some properties of absorbing optical coatings

PERIODICAL: Akademiya nauk Estonskoy SSR. Izvestiya. Seria fiziko-
              matematicheskikh i tekhnicheskikh nauk, v. 11, no. 1,
              1962, 10 - 15

TEXT: Using the results of his previous works (Ref. 1: Optika i
spektroskopiya, 9, 1960, 248); (Ref. 2: Izv. AN EstSSR, Ser. fiz.-
mat. i tekhn. nauk, v. 9, no. 3, 1960, 250); (Ref. 3: Optika i
spektroskopiya, 9, 1960, 386), the author derives some new relati-
ons between the quantities describing the absorbing optical coat-
ings, and considers the case of symmetrical coatings in more detail.
In conclusion, the author draws attention to formula

$$\frac{R}{D} = \frac{U^2}{2(\operatorname{ch}\varphi + \cos 2\mu)} \qquad (23)$$

where R and D are the reflectance and transmittance of a symmetri-
cal coating respectively, U — improvement parameter (i.e. minimal
Card 1/2

Some properties of absorbing ...
S/023/62/011/001/001/002
D237/D301

absorption), φ - absorption parameter, u - phase angle of the ra-
tio r/d where r - amplitude reflectance, d - amplitude transmittan-
ce of the coating, and discusses its implications. There are 5
Soviet-bloc references.

ASSOCIATION: Tartuskiy gosudarstvennyy universitet (State Universi-
                ty of Tartu)

SUBMITTED: February 9, 1961

Card 2/2

KARD, P.

Synthesis of achromatic dielectric interference light dividers
[with summary in German]. Izv. AN Est. SSR, Ser. fiz.-mat. i
tekh. nauk 12 no.1:3-12 '63.   (MIRA 16:5)

1. Tartuskiy gosudarstvennyy universitet. Chlen-korrespondent
AN Estonskoy SSR.
                    (Optical instruments)

S/051/63/014/002/008/026
E032/E114

AUTHOR: Kard, P.G.

TITLE: New formulae for multi-layer films

PERIODICAL: Optika i spektroskopiya, v.14, no.2, 1963, 234-239

TEXT: The greatest disadvantage of existing formulae for
thin films is said to be the fact that they are suitable, strictly
speaking, only for the analysis of f`` s, i.e. for determination
of the spectral characteristics of 1_ms of given composition.
They are not very suitable for determination of the optimum
composition of such films, which is necessary to produce given
spectral properties, A procedure is now developed for avoiding
this difficulty. The new method consists of expanding the energy
coefficients of reflection and transmission R and D of a
multi-layer dielectric film into a Taylor series in powers of
$\alpha_i - g_i \pi/2$, where α_i is given by:

$$\alpha_i = kn_i h_i \cos \vartheta_i ; \tag{3}$$

k is the wave number in vacuum; n_i is the refractive index of

Card 1/2

New formulae for multi-layer films   S/051/63/014/002/008/026
                                        E032/E114

the ith layer, h_i is its thickness, ϑ_i is the angle of
refraction in the layer, and g_i are integers. This expansion
is suitable for practical calculations of the spectral
characteristics as functions of wavelength and thickness of the
layers. The application of the method to specific problems in
the synthesis of multi-layer systems will be given in a future
paper.

SUBMITTED: April 20, 1962

Card 2/2

KARD, P.

Achromatism of the translucence or antitranslucence of absorbing
films. Izv. AN Est. SSR. Ser. fiz.-mat. i tekh. nauk 12 no.2:
115-122 '63.   (MIRA 16:10)

1. State University of Tartu; corresponding member of the Academy
of Sciences of the Estonian S.S.R.

KARD, P.

Theory of asymmetrical mirrors. Izv. AN Est. SSR. Ser.
fiz.mat. i tekh. nauk 12 no.4:359-368 '63.   (MIRA 17:1)

1. Corresponding member of the Academy of Sciences of the
Estonian S.S.R.

$\mathcal{BR}$

ACCESSION NR: AP4035485   S/0051/64/016/005/0914/0916

AUTHOR: Kard, P.G.

TITLE: On the problem of synthesis of multilayer dielectric films

SOURCE: Optika i spektroskopiya, v.16, no.5, 1964, 914-916

TOPIC TAGS: dielectric coating, multilayer dielectric coating, dielectric film,
coated optics

ABSTRACT: In a recent publication R.J.Pegis (J.Opt.Soc.Am.,51,1255,1961) proposed
a procedure for synthesis of multilayer dielectric films (coatings). In his paper
Pegis gives an elegant method for solving the set of quadratic equations that de-
fine the coefficients which enter into the equation for R/D (R is the reflection co-
efficient and D is the transmittance). In the present note the author proposes an
even more elegant method for solving the set of quadratic equations and suggests
some other modifications of Pegis' method. The main difference between the present
method and that of Pegis consist in use of a criterion for a minimum quadratic de-
viation instead of a Fourier series and derivation of a different final equation
for taking the sum, which should reduce the amount of computation involved in ar-

Card 1/2

Card 2/2

L 61669-65 EWT(l) P-4 IJP(c)

ACCESSION NR: AP5011123

UR/0051/65/018/004/0684/0689

535.417.001.1

AUTHOR: Kard, P. G.

TITLE: Theory of narrow-band reflecting interference optical filter

SOURCE: Optika i spektroskopiya, v. 18, no. 4, 1965, 684-689

TOPIC TAGS: interference filter, multilayer filter, reflection filter, narrow band filter

ABSTRACT: In view of the lack of a thorough analysis of the properties and feasibility of narrow-band reflecting interference filters, the author derives general relations that make it possible to synthesize reflecting filters with optimal characteristics, making use of the theory of asymmetrical mirrors previously developed by him (Opt. i spektr. v. 10, 504, 1961; Izv. AN Est. SSR, ser. fiz.-mat, i tekhn. nauk v. 12, 359, 1963). The optimal conditions that must be satisfied by a multilayer film deposited on a high-reflectivity surface in order to produce the narrowest possible reflection band with the greatest reflection coefficient at the maximum are derived. It is shown that the film must be of a sandwich structure and

Card 1/2

L 61659-65
ACCESSION NR: AP5011123

have the properties of an asymmetrical mirror. An expression is derived for the thickness of the intermediate layer between the film and the reflecting surface. Orig. art. has: 1 figure and 36 formulas.

ASSOCIATION: None

SUBMITTED: 23Mar64   ENCL: 00   SUB CODE: OP

NR REF SOV: 003   OTHER: 003

Card 2/2