

Chibisov, K. V.

USSR/ Physics - Spectrophotometry

Card 1/1 Pub. 43 - 28/62

Authors : Kirillov, Ye. A.; Brian, Zh. L.; and Chibisov, K. V.

Title : Employment of the spectrophotometric method for the study of the chemical sensitization of photo emulsions

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 689-690, Nov-Dec 1954

Abstract : A differential spectrophotometric method, developed by Ye. A. Kirillov was utilized for the first time for the study of centers formed during chemical, reduction and sensitization processes of silver bromide emulsions. The sensitization was accomplished by immersion of the layer in a hydrazine solution. The effects of sensitization and aging were determined spectrophotometrically and then compared photographically for the purpose of determining the light sensitivity of the emulsions. Results obtained are briefly described. One USSR reference (1951). Graph.

Institution : The I. I. Mechnikov State University, Physics Inst., Odessa

Submitted : .....

*CHIBISOV, K. V.*

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 27/48

Authors : Kirillov, E. A.; Broun, Zh. L.; and Chibisov, K. V., Memb. Corres. of AN SSSR

Title : Study of the chemical sensitization of photo emulsions. Effect of the reducing agent.

Periodical : Dok. AN SSSR 98/3, 427-430, Sep 21, 1954

Abstract : Reduction sensitization experiments by treating a Lippmann AgBr emulsion in the form of layers applied on glass slides, with a hydrazine ( $N_2H_4 \cdot H_2SO_4$ ) solution, are described. The absorption spectrum of the emulsion layer, treated in a hydrazine solution, was measured and the results are shown in graph. It was found, on the basis of spectrophotometric measurements, that the physical essence of sensitization with hydrazine consists in the formation of silver centers which increase in number and size during increase in concentration of the solution. Three USSR references (1948-1953). Graphs.

Institution: The I. I. Mechnikov State University, Physics Institute, Odessa

Submitted : May 6, 1954

Chibisov, K.V.

of readability: 2.0. (40-581050). AM - AM

Chibisov, K. V.

An investigation of the chemical sensitization of a photographic emulsion. The effects of compounds with labile sulfur. F. A. Kirillov, Zh. L. Bronin, and K. V. Chibisov (U. I. Mechnikov State Univ., Odessa). *Doklady Akad. Nauk S.S.S.R.* 102, 1150-62 (1975); cf. C. I. 49, 12090a. The role of labile S in the chem. sensitization of photographic emulsions was studied by the same spectrophotometric method as used by the authors to investigate reduction sensitization (C. I. 49, 12090a). Thin layers of Lippmann AgBr emulsion were treated for 1 min. at 20° with solns. of thiourea contg.  $0.2 \times 10^{-2}$  and  $0.3 \times 10^{-2}$  mole/l. Comparison of absorption spectra relation with photographic properties indicates the formation of new activity centers in alk. solns., similar in properties to those formed by  $N_2H_4$ . When the Lippmann emulsion was treated with thiourea at its own pH, an "inverted" spectrum of fine structure was obtained, indicating a destruction of the primary centers. With a thiourea concn. of  $0.3 \times 10^{-2}$  the light sensitivity of the emulsion was somewhat increased, but with  $0.3 \times 10^{-2}$  mole/l. it dropped to almost 0. Some supplementary assumptions are suggested to Mitchell's conception of "positive hole" traps as contributing to light sensitivity (Evaus and Mitchell, C.I. 48, 8097a). Ag centers formed in the normal emulsion are formed during the initial ripening principally inside the crystals and act as the acceptors of the "positive holes" and of the Br atoms. Relatively large amorphous Ag centers, located principally on the surface, are the acceptors of the photoelectrons. While both kinds of centers are photoactive, they differ in their functions. The role of S compds. (and of  $N_2H_4$ ) consists in the acceleration of the chem. ripening at the cost of an increased concn. of at. Ag centers. W. M. Sternberg

(2)

*[Handwritten signature]*

CHIBISOV, K.V.

"Principles of the theory of photographic processes." 2 ed. I.A.M.  
Katushev and V.I.Sheberstov. Reviewed by K.Chibisov. Zhur.nauch.  
i prikl. fot. i kin. 1 no.1:77-78 Ja-F '56. (MIRA 9:10)  
(Photographic chemistry)(Katushev, I.A.M.)(Sheberstov,V.I.)

*CHIBISOV, K.V.*

Category : USSR/Optics - Scientific photography

K-11

Abs Jour : Ref Zhur - Fizika, N° 1, 1957 No 2658'

Author : Broun, Zh.L., Kirillov, Ye.A., Chibisov, K.V.

Inst : Physics Inst. of the Obukhov Univ. USSR

Title : Spectrophotometric Investigation of Chemical Sensitization of Photographic Emulsions.

Orig Pub : Zh. nauka i prikl. fotogr. i kinematogr., 1956, 1, No 2, 98-110

Abstract : Chemical sensitization was studied with layers of Lipman emulsion, first processed in a solution of hydrazine, tin chloride, thiourea, or thiozinamine at 20° for 10--30 minutes. After the layer was washed and dried, the absorption spectrum was determined with a double monochromator from the ratio to the unprocessed layer in the 400--800 mμ region, with intervals of 2.5--5 mμ (using the Kirillov method). To determine the photographic action of these solutions, the compounds were exposed and developed in a glycin developer. The light sensitivity was determined from the threshold (using the Eder-Hecht wedge). It was established that when the layer of Lipman emulsion is treated with reducers (hydrazine, tin chloride) or with compounds with labile sulphur (thiourea or thiozinamine in alkaline medium) in certain concentrations, one observes a fine spectral structure, coinciding with the structure produced by photochemically-dyeing silver bromide or by vacuum spattering of silver. An analogous

Card : 1/2

CHIBISOV, K.V.

Defense of dissertations. Zhur.nauch. i prikl. fot. i kin. 1 no.3:236  
My-Je '56. (Color photography) (MIRA 9:9)

CHIBISOV, K.V.

"Documents on the history of the invention of photography;  
correspondence of J.N. Niepce, J.M. Daguerre, and others"  
("Trudy" of the Archives of the Academy of Sciences of the  
U.S.S.R., no. 7). Reviewed by K.V. Chibisov. Zhur. nauch.  
i prikl. fot. i kin. 1 no.4:317-318 J1-Ag '56. (MLRA 9:10)

(Photography--History) (Niepce, J.N.) (Daguerre, J.M.)





Investigations of the nature of photographic sensitization  
K. I. Chibasov, *Kuliguer* 14, Moscow, 1960  
The VI, 50-100, 1960, 11, 80, 900 - A review of the  
theory of Russian work, with 41 references.

Study of the Structure of Silver Centres in Photographic  
Emulsion. J. A. Kousser and V. A. Kargin  
The structure of silver centres in photographic emulsion  
is studied by X-ray diffraction. The presence of silver  
centres in the emulsion is confirmed by the presence of  
diffraction lines. The concentration of silver centres is  
determined by the intensity of the diffraction lines. It is  
found that the concentration of silver centres present in the  
emulsion increases with the degree of chemical ripening  
before exposure, and that the intensity of the diffraction  
lines is proportional to the concentration of silver centres.  
The results show that the structure of silver centres in  
photographic emulsion is highly ordered and that the  
concentration of silver centres increases with the degree  
of chemical ripening before exposure.

amorphous particles increases the light sensitivity with a constant for density

*Взаимосвязь между количеством аморфных частиц и светочувствительностью при постоянной плотности*

V. K. V. Chibisov (on his 60th birthday). V. I. Sheberstov.  
*Zhur. Nauch. i Priklad. Fot. i Kinematografi* 2, No. 1, 02-3  
(1957).—A description of the work of Ch., who is a photo-  
chemist. Werner Jacobson

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CHIBISOV, K.V.

~~Summary of the work of the International Conference on Scientific  
Photography. Zhur. nauch. i prikl. fot. i kin. 2 no.1:65-68 Ja-F~~  
'57. (MLRA 10:3)

(Cologne--Photography--Congresses)

Chibisov K.V.

USSR/General Problems. Methodology. History. Scientific A  
Institutions and Conferences. Instruction.  
Questions Concerning Bibliography and Scientific  
Documentation.

Abs Jour : Ref Zhur-Khimiya, No 3, 1958, 6813  
Author : K. V. Chibisov  
Inst :  
Title : Work of Soviet Scientists in Sphere of Theory  
of Photographic Emulsions  
Orig Pub : Zh. nauchn. i prikl. fotogr. i kinematogr.,  
1957; 2, No 5, 372-389  
Abstract : Review (covering 40 years) of most important  
works. Bibliography with 116 titles.

Card 1/1

CHIBISOV, K.V.

The nature of photographic sensitivity. *Usp. nauch. fot.* vol. 5:5-38  
'57. (MIRA 10:6)

(Photographic sensitometry)

CHIBISOV, K.

Photography as a method of research in science and technology.  
Sov.foto 17 no.1:3-6 Ja '57. (MIRA 10:7)

1. Chlen-korrespondent Akademii nauk SSSR.  
(Photography--Scientific applications)



CHIBISOV, K.

Summary of the work of the International Conference on Scientific  
Photography. Sov. foto 17 no.4:60-62 Ap '57. (MIRA 10:6)  
(Cologne--Photography--Congresses)

CHIBISOV, K. V.

AUTHOR: Chibisov, K. V., Corresponding Member AS USSR 30-2-25/49

TITLE: Conference on Scientific and Applied Photography  
(Konferentsiya po nauchnoy i prikladnoy fotografii)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 2, pp 90-91  
(USSR)

ABSTRACT: Called by the Hungarian Society for Optics and Motion Picture this conference took place in Budapest from September 11 to September 14, 1957. 12 reports were made by Hungarian and 14 by foreign specialists. The participants visited an exhibition of photographic cameras and of photographic material of Hungarian origin, as well as the production of motion picture films photographic films and photographic paper. This conference dealt with problems of the nature of light-sensitive photographic films, the photographic activity of gelatine and its synthetic substitutes, sensitizers and others. Questions of emulsion technology, of colour photography, of the developing process and of photographic sensitometry. The conference decided to establish a regular exchange of publications, and systematic meetings of

Card 1/2

Conference on Scientific and Applied Photography

30-2-25/49

specialists of the people's republics. Moreover, such conferences should be held at least once a year.

AVAILABLE: Library of Congress

1. Conferences-Photography-Budapest
2. Photography-Hungary
3. Photography-Equipment
4. Films-Applications

Card 2/2

~~CHIBISOV, K.V.~~

Conference on scientific and applied photography in Budapest and  
the photographic and cinematographic industry of Hungary. Zhur.  
nauch. i prikl. fot. i kin. 3 no.1:73-75 Ja-P '58. (MIRA 11:2)  
(Budapest--Photography--Congresses)  
(Hungary--Photography) (Hungary--Cinematography)

SOV 77-3-4-23/23

**AUTHOR:** Ghibisov, K.V.; Bogomolov, K.S.

**TITLE:** The State of Photographic Science and Industry in Japan (Sostoyaniye fotograficheskoy nauki i promyshlennosti v Yaponii)

**PERIODICAL:** Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1958, Vol 3, Nr 4, pp 314-320 (USSR)

**ABSTRACT:** The authors review the various spheres of activity in theoretical photography and in the photographic industry in Japan. There are 2 photos and 3 tables.

1. Photography--Japan 2. Photography--Theory

Card 1/1

USCOMM-DC-55606

**CHIBISOV, K.V.**

**Present-day interpretations of the formation of photographic sensitivity. *Khim.nauk i prom.* 3 no.5:556-567 '58.**

**(NYRA 11:11)**

- 1. Chlen-korrespondent AN SSSR.  
(Photographic emulsions)**

Present Opinions in the Field of the Photographic  
Emulsion Theory

74-27-3-2/7

generality of the defects of admixtures, as well as of the uniformity of chemical sensibility (as a reduction process) (see diagram 6 and 7). The author investigated the actions on the spectral sensitivity to light of the primary centres, the changes of concentration by means of chemical maturing. For this purpose the distribution of sensitivity within the range  $\lambda = 400-800 \text{ m}\mu$  at non-sensitized emulsions (at various moments of the second maturing) was investigated by means of spectral sensimetry. For the determination of the joint binding between  $S_{\Sigma}$ ,  $S_{\lambda 450}$  and  $S_{\lambda > 600}$ -sensitivity the change of these quantities since the second maturing was compared (see diagram 6). It strikes in this comparison that the increase of sensitivity ( $S_{\lambda 450}$ ) since the second maturing to the maximum considerably lags behind the increase of the integral sensitivity ( $S_{\Sigma}$ ). In this connection the increase of the long wave sensitivity ( $S_{\lambda > 600}$ ) is of the same order as with  $S_{\Sigma}$ . Therefore, it is assumed

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Present Opinions in the Field of the Photographic  
Emulsion Theory

74-27-3-2/7

that chemical maturing is more effective than the long wave or integral sensitivity. Moreover, the author describes the bromine iodine containing emulsions on which occasion he finds that the iodine ions equally act on the integral and "blue" sensitivity which increases their value to the maximum. The dependence of the sensitivity on the content of silver iodide in the emulsions is illustrated in diagram 7, and the lanciform phenomena of the increase of sensitivity after the addition of hydrazine sulfate to the emulsion on diagram 8. Also the reciprocal bindings between the own and the added defects of the emulsion crystals are of interest. It was found that there is always an interaction between the own and the added defects of the emulsion crystals. Finally the case of the hidden shoping in chemically non sensitized micro crystals is discussed: this process takes place in two stages. There are 9 figures, 2 tables, and 56 references, 31 of which are Soviet.

1. Photographic emulsions--Theory

Card 5/5



CHIBISOV, K.V.; BOGOMOLOV, K.S., kand. khim. nauk

Fourth symposium on photographic sensitivity. Vest. AN SSSR 28  
no. 6:95-96 Ja '58. (MIRA 11:7)

1. Chlen-korrespondent AN SSSR(for Chibisov).  
(Tokyo--Photographic emulsions--Congresses)

AUTHORS: Karpova, A. L., Mikhaylova, A. A., SOV/20-121-1-37/55  
Chibisov, K. Y., Corresponding Member, Academy of Sciences, USSR

TITLE: On the Photographic Activity of Gelatin (O fotograficheskoy aktivnosti zhelatiny)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 133 - 135 (USSR)

ABSTRACT: The authors tried to remove the admixtures from gelatin by means of adsorbers and to separate them by means of an electro-dialysis with the aim to investigate the influence of these admixtures on the chemical "ripening". Various adsorbers exhibit a selective action and only some resins with ion exchange were suited for a practically complete removal of all active admixtures. By this the different gelatin samples were given the same properties and turned into slowly acting gelatin. Also electro-dialysis removes the active admixtures and renders gelatin inert. If a five-chamber device is applied the admixtures can be separated in the form of an anodic and a cathodic fraction by electro-dialysis. The substances of the cathode fraction do not directly interact with the silver ions. The compounds with unstable sulfur, the reducing agents,

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On the Photographic Activity of Gelatin

SOV/20-121-1-37/55

and the complex forming substances of the first kind, however, turn into the anode fraction. According to photographic investigations, the solution of the cathode fraction slows the ripening down while the anode fraction accelerates it. The photographic effect of the gelatin during ripening is realized by its two components: The macro-component, i.e. the albumins of the gelatin, exhibits a protective effect and acts reducingly; the micro-components control the velocity of the chemical ripening. There are 3 figures, 2 tables, and 3 references, which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut  
(All-Union Scientific Research Institute of Photography and Cinematography)

SUBMITTED: March 18, 1958

Card 2/3

On the Photographic Activity of Gelatin

SOV/20-121-1-37/55

1. Photographic emulsions--Separation
2. Photographic emulsions--Chemical reactions
3. Photographic emulsions--Properties
4. Adsorbents--Performance

Card 3/3

23(

SOV/77-4-3-4/16

AUTHORS: Karpova, A.L., Mikhaylova, A.A., Chibisov, K.V.

TITLE: On the Photographic Activity of Gelatine  
II. An Increase in the Kinetic Activity of Gelatine

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinemato-  
grafii, 1959, Vol 4, Nr 3, pp 183-192 (USSR)

ABSTRACT: This is a study of the effect of sodium thiosulfate on the second ripening process of gelatine solutions, shown on the example of three different gelatine components. On the basis of experimentally obtained data, the authors deduced a general equation, expressing with it the dependence of the rate of second ripening on the quantity of natural and added accelerators. Parallel to these experiments, the authors studied the effect of other sulfurous sensitizers and also of bromine (silver) ion concentration. Different quantities of sodium thiosulfate and the solid phase separated from the colloid of the first ripening pro-

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SOV/77-4-3-4/16

On the Photographic Activity of Gelatine. II. An Increase in the Kinetic Activity of Gelatine

cess were added to solutions of gelatine with different activity coefficients. The solid phase contained 3 mol. % AgJ in addition to AgBr. The authors started from the assumption that in the stage of chemical ripening sodium thiosulfate acts only as a complex-forming substance, causing acceleration of chemical ripening. The added quantity A', therefore, was added to the quantity A of natural accelerators in the gelatine. These data, in connection with the quantity B of natural retarders, served as the basis for the calculation of the activity coefficient ( $K = \frac{A + A'}{B}$ ).

Table 1 demonstrates the results obtained. It contains in addition the values  $\tau$  (time required to reach the maximum light sensitivity) and  $\tau_0$  ( $\tau_0 = k\tau$ ). The values  $\tau$  were calculated with the aid of the curves of change in light sensitivity for each concentration of

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On the Photographic Activity of Gelatine. II. An Increase in the Kinetic Activity of Gelatine

$\text{Na}_2\text{S}_2\text{O}_3$  introduced into the emulsion. This calculation was carried out, to demonstrate the subordination of the values to the already found [reference 27] linear dependence between the activity coefficient and the rate of chemical ripening and, consequently, to confirm the assumed role of  $\text{Na}_2\text{S}_2\text{O}_3$  in this process. The results confirm this assumption, showing that  $\text{Na}_2\text{S}_2\text{O}_3$  behaves like those natural complex-forming components, which have most affinity to the silver ions. The obtained values are characterized by two prominent features: 1) A strict dependence of  $t_0$  on the conditions of emulsion synthesis, and 2) fluctuations of the individual values of this magnitude within parallel experiments. This shows that  $t_0$  (time required to reach the maximum

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SOV/77-4-3-4/16

On the Photographic Activity of Gelatine. II. An Increase in the Kinetic Activity of Gelatine

light sensitivity, if  $k=1$ ) is a very sensitive magnitude indicative of the observation of constancy of the established synthesis conditions. On the basis of their experiments, which confirmed the role of  $\text{Na}_2\text{S}_2\text{O}_3$  as accelerator during the ripening process, the authors enlarged the previously obtained formula

$\tau_0 = \frac{A}{B} z$  by adding  $A'$  to the numerator of the activity coefficient. The equation (in its final form:  $A' \tau_0 B \frac{1}{z} - A$ ), on the basis of the dependency

$\frac{1}{z}, A' \tau_0^2$  (see graph 1, which represents this dependency for the three series of experiments in table 1), makes it possible to determine the content of accelerators and retarders in gelatine. In order to clarify the role of sodium thiosulfate, the authors

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SOV/77-4-3-4/16

On the Photographic Activity of Gelatine. II. An Increase in the Kinetic Activity of Gelatine

considered it suitable to compare its effect on chemical ripening with the effect of other compounds with an unstable sulphur component. A study of the effect of thiourea, sodium tetrathionate and trithionate and potassium rodanide revealed that, with the exception of thiourea, these compounds are not subject to the general equation (graphs 2-4). They showed a retarding effect on the ripening process. Finally, the authors studied the effect of pAg (pBr) on the kinetics of chemical ripening. Graph 5 shows curves (based on previously described experimental data), which represent the dependence of the rate of ripening on pAg for bromine and bromo-iodine emulsions. The curves (table 4) show the complicated character of this dependency. A further factor is the instability of the maximum light sensitivity (section 2 of graph 5), which can be reached at various values

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SCV/77-4-3-4/16

On the Photographic Activity of Gelatine. II. An Increase in the Kinetic Activity of Gelatine

of pAg. Optimum pAg can be assumed in the case, when the maximum light sensitivity has been reached. The strong effect of the nature of the gelatine component on this phenomenon however has to be taken into consideration. This factor also plays a role in the dependence of the change of maximum sensitivity on pAg. The last section is a theoretical generalization of the results. Table 4 is a synopsis of the effects exercised by the various substances on the rate of ripening, the maximum of light sensitivity and the fog phenomenon. The latter is considered in connection with the maxima of light sensitivity. The authors mention the Soviet scientist V.A. Bekunov [reference 7\_7, who proved the linear dependence (pAg,  $\frac{1}{t}$ ). There

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are 5 tables, 5 graphs and 8 references, 6 of which are

SOV/77-4-3-4/16

On the Photographic Activity of Gelatine. II. An Increase in  
the Kinetic Activity of Gelatine

Soviet and 2 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy kinofotoin-  
stitut (NIKFI) (All-Union Scientific Research In-  
stitute for Motion Pictures and Photography (NIKFI))

SUBMITTED: 22 August, 1957

Card 7/7

23(

SOV/77-4-3-14/16

AUTHOR: Chibisov, K.V.

TITLE: Great Jubilee. The Seventy-Fifth Birthday of Professor Ye.A. Kirillov

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1959, Vol 4, Nr 3, pp 237-238 (USSR).

ABSTRACT: This is a review of the scientific, pedagogical and organizational work of Professor Yelpidifor Anempodistovich Kirillov, written on occasion of his 75th birthday. Since 1921 the scientist has been a professor at Odesskiy gosudarstvennyy universitet (Odessa State University), where he holds the chair of experimental physics in the physico-mathematical department. There is 1 photograph.

Card 1/1

SOV/20-126-5-30/69

## On the Spectral Properties of Optically Non-sensitized Photographic Emulsions

ripening of the emulsion for different  $\lambda$ , with the kinetic curves of the total light sensitivity (Figs 2,3). The fine structure of the absorption spectra indicates that the crystallization of silver bromide is in the first ripening accompanied by the formation of impurities consisting of silver nuclei. The latter have an immediate effect upon the total sensitivity as well as the sensitivity to blue light. The sensitivity to long-wave light increases only slowly during the time for ripening and is not determined by the amount of AgJ, which increases only the concentration of the primary nuclei (silver nuclei) and the total sensitivity and the sensitivity to blue light. According to Mitchell (Ref 7) the following is assumed: The sensitivity to long-wave light is caused by a kind of coagulation of the nuclei to larger units. The concentration of these units remains inconsiderable compared with that of the primary nuclei. Experiments made by Ye. P. Kramaley (Ref 8) show that silver may occur in the emulsion also in atomic or molecular state apart from the colloidal disperse form. This is assumed for the primary nuclei (I) which, therefore, consist of  $Ag_2$ , are in equilibrium with AgBr, and are adsorbed in

Card 2/3

SOV/20-126-5-30/69

On the Spectral Properties of Optically Non-sensitized Photographic Emulsions

the lattice defects of the microcrystals. They cause the total and blue light sensitivity. The secondary nuclei (II) - the units - determine the sensitivity to long-wave light and represent the sublatent nuclei. The third kind are the catalytic developmental nuclei (III). They consist of amorphous silver particles with a high energy potential. They are formed during the capture of photo electrons by the positively charged sublatent nuclei (II). The transformation (I) - (II) - (III) takes place in the course of ripening of the emulsion as well as under the action of light. These impurity nuclei take part in the formation of the latent image. There are 3 figures and 13 references, 7 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (All-Union Scientific Research Institute of Cinematography and Photography), Institut fiziki Odesskogo gosudarstvennogo universiteta im. I. I. Mechnikova (Physics Institute of Odessa State University imeni I. I. Mechnikov)

SUBMITTED: April 1, 1959  
Card 3/3

*Chibisov, K.V.*

PHASE I BOOK EXPLOITATION

SOV/4159

Akademiya nauk SSSR. Komissiya po nauchnoy fotografii i kinematografii

Uspekhi nauchnoy fotografii, tom 7: Priroda fotograficheskoy chuvstvitel'nosti. Izgotovleniye galoidoserebryanykh fotograficheskikh sloyev. Opticheskaya sensibilizatsiya i gipersensibilizatsiya. Khimiko-fotograficheskaya obrabotka svetochuvstvitel'nykh sloyev (Nature of Photographic Sensitivity. Preparation of Haloid-Silver Photographic Layers. Optical Sensitizing and Hyper-Sensitizing. Chemical-Photographic Treatment of Photo-Sensitive Layers) Moscow, 1960. 260 p. Errata slip inserted. 1,800 copies printed.

Editorial Board: K.V. Chibisov (Resp. Ed.) Corresponding Member, Academy of Sciences USSR, V.I. Sheberstov (Deputy Resp. Ed.) Candidate of Chemical Sciences, Docent, Yu. N. Gorokhovskiy, Doctor of Chemical Sciences, Professor, G.A. Istomin, Doctor of Technical Sciences, Professor, and I.I. Levkoyev, Candidate of Chemical Sciences; Ed. of Publishing House: K.I. Narkhilevich; Tech. Ed.: G.S. Simkina.

PURPOSE: This collection of articles is addressed to those working in theoretical and applied photography and cinematography, and to researchers in the chemistry

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Nature of Photographic Sensitivity (Cont.)

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10-24-60

KARPOVA, A.L.; CHIBISOV, K.V.

Additional reflections on the nature of the photographic activity  
of gelatin. Zhur.nauch.i prikl.fot.i kin. 5 no.4:301-308  
Jl-Ag '60. (MIRA 13:8)  
(Gelatin) (Photographic emulsions)

CHIBISOV, K.V.

Chemical sensitizing in the ripening of the photographic  
emulsion. Zhur.nauch.i prikl.fot.i kin. 5 no.1:65-74 '60.  
(MIRA 13:5)

(Photographic emulsion)

23(0)

AUTHOR:

Chibisov, K.V., Corresponding Member of the Academy of Sciences USSR  
S/030/60/000/01/025/067  
B015/B008

TITLE:

Colloquium on Scientific Photography

PERIODICAL:

Vestnik Akademii nauk SSSR, 1960, Nr 1, pp 72-73 (USSR)

ABSTRACT:

The Colloquium was held at Liège, Belgium, from September 14 to 19, 1959, and had been convened by Liège University. The program of the Colloquium consisted of 3 comprehensive problems: factors and the character of photographic sensitiveness; optical sensitiveness; essential photographic processes. The following reports were given on behalf of the Soviet scientists: V.A. Bekunov reported on the influence of gelatin on the kinetics of chemical maturing; K.V. Chibisov reported on the character of chemical sensitiveness; I.I. Levkoyev, E.B. Lifshits and S.V. Natanson reported on the light absorption and the sensitizing action of the cyanogen dyes in dependence on their structure; S.V. Natanson characterized the adsorption of optical sensitizers on silver-halides; A.N. Terenin and I.A. Akimov analyzed the optical sensitiza-

Card 1/2

CHIBISOV, K.V.

International Colloquium on Scientific Photography. Zhur.  
nauch.i prikl.fot.i kin. 5 no.3:234-238 My-Je '60.

(MIRA 13:7)

(Photography--Scientific applications)



CHIBISOV, K.V.

Nature and formation of photographic sensitivity (based on the  
Mitchell theory). Usp.nauch.fot. 7 :13-24 '60.

(MIRA 13:7)

(Photochemistry)

LEVITSKAYA, R.A.; BROUN, Zh.L.; CHIBISOV, K.V.

Transformation of the additive centers during accelerated aging  
of photographic emulsions. Zhur.nauch. i prikl.fot i kin. 5 no.5:  
361-363 S-O '60. (MIRA 13:12)

1. Institut fiziki Odesskogo universiteta imeni I.I.Mechnikova i  
Kafedra uchebnoy i nauchnoy fotografii i kinematografii Moskovskogo  
gosudarstvennogo universiteta.  
(Photographic emulsions)

CHIBISOV, K.V.

Ways of increasing the effective sensitivity in photography. Zhur.  
nauch. i prikl. fot. i kin. 6 no.1:67-74 Ja<sup>n</sup>'61. (MIRA 14:3)  
(Photography—Research)

CHIBISOV, K.V.; SIKIC-BRADIC, L., [translator]

Photographic sensibility. Kem ind 10 no.4:Suppl.F- 52-53 Ap '61.

1. Akademija nauka SSSR, Moskva (for Chibisov).

MEL'NICHUK, L. P.; BROUN, Zh. L.; CHIBISOV, K. V.

Localization of the topochemical reaction during the rapid aging of photographic emulsions. Zhur.nauch.i prikl.fot. i kin. 6 no.4:301-304 J1-Ag '61. (MIRA 14:11)

1. Institut fiziki Odeskogo universiteta imeni I. I. Mechnikova i Kafedra uchebnoy i nauchnoy fotografii i kinematografii Moskovskogo universiteta.

(Photographic emulsions)

GOLDOVSKIY, Yevsey Mikheylovich; CHIBISOV, K.V., otv. red.; PRO-  
KOP'YEVA, N.B., red. izd-va; VOLKOVA, V.V., tekhn. red.

[From silent to panoramic motion pictures] Ot nemogo kino  
k panoramnomu. Moskva, Izd-vo Akad. nauk SSSR, 1961. 147 p.  
(MIRA 14:5)

1. Chlen-korrespondent AN SSSR (for Chibisov)  
(Motion pictures)

VALYUS, Nikolay Adamovich; CHIBISOV, K.V., otv. red.; GUS'KOV, G.G.,  
red. izd-va; MAKUNI, Ye.V., tekhn. red.

[Stereoscopy]Stereoskopia. Moskva, Izd-vo Akad. nauk SSSR,  
1962. 378 p. (MIRA 15:11)

1. Chlen-korrespondent Akademii nauk SSSR (for Chibisov).  
(Stereoscopy)

CHIBISOV, K.V.

Fine structure of the impurity absorption spectrum of silver  
halides. Zhur.nauch.i prikl.fot. i kin. 7 no.3:226-228 My-Je '62.  
(MIRA 15:6)

(Silver halides--Spectra)



CHIBISOV K.V.

CIBISOV, K.V.; SAMBOLIC, Branka [translator]

Methods of increasing effective sensitiveness in photographic systems. *Kemija u industriji* 11 no.2:60-63 '62.

CHIBISOV, K.V.

[Basic problems of the chemistry of photographic emulsions]  
Osnovy problemy khimii fotograficheskikh emul'sii. Moskva,  
Izd-vo Mosk. univ. NIKFI, 1962. 121 p. (MIRA 16:4)

1. Chlen-korrespondent Akademii nauk SSSR (for Chibisov).  
(Photographic emulsions)

L 18511-63

EMP(g)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3001659

S/0077/63/008/003/0174/0184

AUTHOR: Kraush, L. Ya.; Lyssenko, L. P.; Chibisov, K. V.

TITLE: Investigation of substructure in silver bromide microcrystals

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, no. 3, 1963, 174-184, vol. 8

TOPIC TAGS: photolysis, polyhedral substructure, silver bromide, electron stage, ionic stage, crystal lattice, microcrystal

ABSTRACT: The model microcrystals up to 50 Micron in size used in this investigation were obtained by spontaneous evaporation of a saturated silver bromide solution in 15% ammonia. In order to bring out their substructure these crystals were etched by exposure to ammonia vapors, to a 1% solution of sodium thiosulfate, or to dilute methol-hydroquinone solution, taking care to permit the etching to affect only the surface of the crystals or their partial breakup, without causing dissolution. The crystals were exposed to daylight, as well as irradiated with a quartz mercury lamp. It was found that the spots of the crystals which were affected by such treatment were those where some defects of the lattice structure

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L 18514-63

ACCESSION NR: AP3001659

had already existed, presumably formed during the growth of the crystals. Micro-crystals were generally more affected than large crystals. Gaseous ammonia, as well as photolysis, was capable of separating well-shaped tablets into separate parts. These observations are in accord with the already known fact that in photolysis of silver bromide crystals the deposition of free silver takes place along the boundaries of the polyhedral structure. Orig. art. has: 6 pictures.

ASSOCIATION: Kafedra uchebnoy i nauchnoy fotografii i kinematografii Moskovskiy gosudarstvennogo universiteta (Chair of Instructive and Scientific Photography and Cinematography, Moscow State University)

SUBMITTED: 15Dec61

DATE ACQ: 12Jun63

ENCL: 00

SUB CODE: CH

NO REF SOV: 001

OTHER: 021

Card 2/2

BROUN, Zh.L.; CHIBISOV, K.V.

Comparison study of the chemical and physical developing. Zhur.  
nauch.i prikl.fot.i kin. 8 no.1:59-61 Ja-Feb. '63.

(MIRA 16:2)

1. Nauchno-issledovatel'skiy institut fiziki Odesskogo  
universiteta i kafedra uchebnoy i nauchnoy fotografii  
i kinematografii Moskovskogo gosudarstvennogo universiteta.  
(Photography--Developing and developers)

BELOUS, V.M.; CHIBISOV, K.V.

Relationship between the luminescent and photographic properties of emulsion layers. Zhur.nauch. i prikl.fot. i kin. 8 no.5:334-337 S-0 '63. (MIRA 16:9)

CSIBISZOV, K.W. [CHIBISOV, K.V.], dr. (Moszkva); POLSTER, Alfred, dr.  
[translator]

Topographical properties of chemical sensitization of  
photographic emulsions. Kep Lang 9 no.6:161-163 D '63.

S/020/63/149/002/023/028  
B117/B126

AUTHORS: Broun, Zh. L., Kirillov, Ye. A., Chibisov, K. V.,  
Corresponding Member AS USSR

TITLE: The discrete character of the extrinsic spectral photo-  
sensitivity of photographic emulsions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 149, no. 2, 1963, 353-356

TEXT: The extrinsic spectral photosensitivity of photographic emulsions was studied by the differential method which determines the relative sensitivity to light:  $S'_\lambda = S_{\lambda,t}/S_{\lambda,0} = H_{\lambda,0}/H_{\lambda,t}$ .  $S_\lambda$  is the spectral photosensitivity and  $H_\lambda$  the monochromatic radiation energy which gives rise to a certain photoeffect (criterion of the light sensitivity) during the ground-state of the emulsion (0) and in a definite instant (t) of chemical sensitization, respectively. The authors studied a Lippmann silver bromide emulsion sensitized with gold chloride, and normal chemically ripened emulsions. The curves of the extrinsic spectral photosensitivity of the Lippmann emulsion showed: selective bands with coincident maxima at a different degree of sensitization; during  
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The discrete character of the extrinsic ...

S/020/63/149/002/023/028  
B117/B186

sensitization different changes of band intensity; considerable increase in extrinsic photosensitivity beyond the long-wave limit of the individual absorption of the solid emulsion phase. The curves of the relative spectral photosensitivity of normal emulsions showed a similar course: low  $S_{\lambda}$  -values in the region up to  $\lambda = 530$  m, and high ones in the long-wave region, especially when the time of chemical maturing was prolonged; discrete bands with the maxima lying close together. The data obtained indicated that the increased photosensitivity of photographic emulsions is due to the double function of the primary molecular-colloidal centers. These centers are assumed to act at the same time as electron donors and bromine acceptors, when the latent image is formed. There are 2 figures and 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut fiziki Odesskogo gosudarstvennogo universiteta  
(Scientific Research Institute of Physics of the Odessa State University);  
Nauchno-issledovatel'skiy kino-fotoinstitut  
(Motion Picture and Photography Scientific Research Institute)

SUBMITTED: November 30, 1962  
Card 2/2

ACCESSION NO. AP4013973

S/0077/64/009/001/0038/0046

AUTHORS: Broun, Zh. L.; Varshaver, B. G.; Mel'nichuk, L. P.; Chibisov, K. V.

TITLE: Interaction investigations between spectral sensitivity and admixture spectral absorption of photographic emulsions

SOURCE: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, v. 9, no. 1, 1964, 38-46

TOPIC TAGS: spectral sensitivity, photographic emulsion, silver bromide, admixture center, gold sensitizer, discrete bands

ABSTRACT: The possible existence of a discrete character in the spectral sensitivity of an optically unsensitized photographic emulsion has been studied. First, the magnitude of relative spectral sensitivity  $S'_{\lambda} = H_{\lambda} / H_{\lambda_0}$ ,  $H_{\lambda}$  is energy of monochromatic radiation) is calculated for various values of  $\lambda$  and, secondly, a silver bromide Lieppman emulsion is used to observe carefully the thin structure of the admixture center spectra, using the differential method with a gold sensitizer. The spectrosensitometer ISP-73 is used to determine  $S_{\lambda}$  in the wave-length interval 420-700 m $\mu$ . It is shown that the admixture spectral sensitivity is distributed in

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ACCESSION NR: AP4013973

discrete bands both in the limits of fundamental absorption of silver halogenide and in the long wave-length region, with a spectral position corresponding to thin structured bands of the admixture spectra. A discussion is given on the role played by these centers on the emulsion layer under the action of light. "The authors are grateful to Professor Ye. A. Kirillov for evaluating this work." Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: Odesskiy gosudarstvennyy universitet im. I. I. Mechnikova (Odessa State University); Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI) (All-Union Scientific Research Motion Picture Institute)

SUBMITTED: 13Nov62

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: PG

NO REF SOV: 017

OTHER: 003

Card 2/2

BELOUS, V. M.; CHIBISOV, K. V.

Luminescence studies of the role played by admixed silver centers  
in the photolysis of silver halides. Dokl. AN SSSR 156 no. 1:  
121-124 My '64. (MIRA 17:5)

1. Odesskoye vyssheye inzhenernoye morskoye uchilishche i  
Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova.
2. Chlen-korrespondent AN SSSR (for Chibisov).

CHIBISOV, K.V.

Introductory address delivered at the 13th Conference on the Scientific  
Applications of Photography. Usp.nauch.fot. 10:5-6 '64.  
(MIRA 17:10)

PYATNITSKAYA, A.B.; MEL'NICHUK, L.P.; BROUN, Zh.L.; CHIBISOV, K.V.

Evolution of additives' centers during the process of after-ripening and accelerated aging of photographic emulsions.  
Part 1: Changes in the spectral absorption during chemical ripening and accelerated aging. Zhur. nauch. i prikl. fot. i kin. 9 no.5:321-327 S-0 '64.

(MIRA 17:10)

1. Odesskiy gosudarstvennyy universitet imeni Mechnikova.

CHIBISOV, K.V.; KAL'MANSON, E.V.

Effect of surface additive centers on the deep light sensitivity  
of photographic emulsions. Zhur. nauch. i prikl. fot. i kin. 10  
no.4:292-294 J1-Ag '65. (MIRA 18:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut (NIKFI).

BROUN, Zh.L.; KIRILLOV, Ye.A. [deceased]; CHIBISOV, K.V.

Comparative study of the chemical ripening and photolysis of  
photographic emulsions. Dokl. AN SSSR 161 no.3:624-626 Mr '65.  
(MIRA 18:4)

1. Chlen-korrespondent AN SSSR (for Chibisov).



KIRILLOV, Ye.A. [deceased]; GOL'DENBERG, A.B.; NESTEROVSKAYA, Ye.A.;  
CHIBISOV, K.V.

Absorption features of colloidal solutions and dry layers of  
certain organic dyes. Dokl. AN SSSR 161 no.6:1371-1374 Ap '65.  
(MIRA 18:5)

1. Nauchno-issledovatel'skiy institut fiziki Odesskogo gosudarstven-  
nogo universiteta im. I.I.Machnikova. 2. Chlen-korrespondent AN  
SSSR (for Chibisov).

ACC NR: AP7010713

SOURCE CODE: UR/0020/66/170/005/1121/1123

AUTHOR: Broun, Zh. L.; Chibisov, K. V. (Corresponding Member AN SSSR)

ORG: none

TITLE: Nature of centers of the latent image and latent fog

SOURCE: AN SSSR. Doklady, v. 170, no. 5, 1966, 1121-1123

TOPIC TAGS: STET image, photographic emulsion, optic density, spectrophotometry, photographic densitometer / SSF-4 spectrophotometer, IKS-12 spectrometer

SUB CODE: 14,20

ABSTRACT: The authors studied the differences between the formation and properties of centers of latent fog and the latent image. The study is based on an investigation of the kinetics of chemical aging and photolysis from data of direct observations which were compared with the pattern of the developed fog and image. Since the differential method for measuring optical densities at various moments of aging and photolysis was used for direct observation, information was obtained not only on the quantity of free silver formed, but also on its degree of dispersion since the latter affects the covering power. The study of chemical aging was based on a normal iodobromide emulsion with specimens taken after various periods (up to 128 hours). The specimens were diluted in a gelatin solution (1:20) and the optical den-

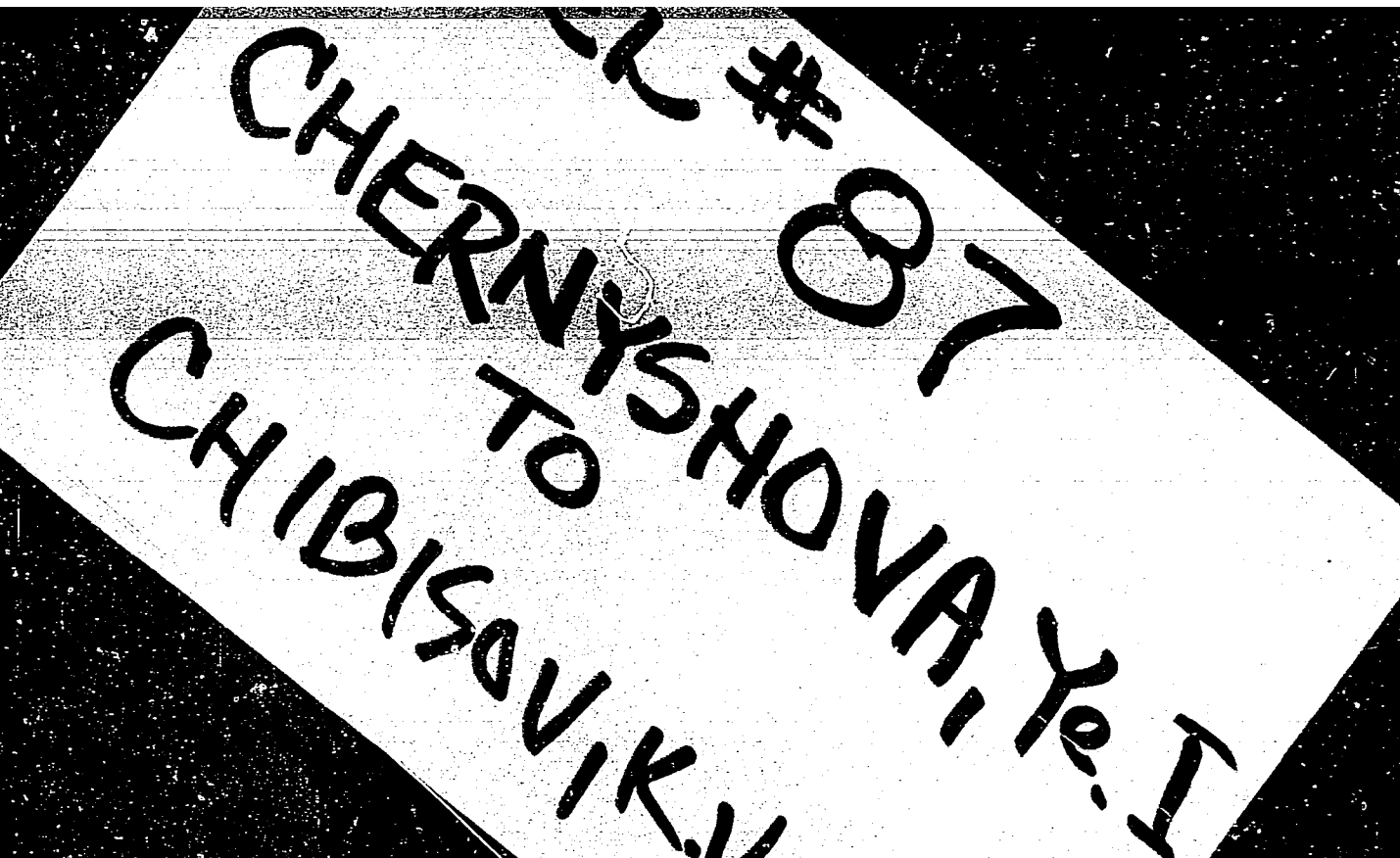
Card 1/2

UDC: 535.34

ACC NR: AP7010713

sities of the dry layers were measured (after desensitization in pinacryptol yellow) on an SSF-4 spectrophotometer at 710 m $\mu$  with respect to zero aging. These same layers were developed (Metol hydroquinone developer, 1:5) and measured at the same wavelength. The photolytic study was based on a silver bromide Lippmann emulsion (4 $\times$  concentration). The emulsion layers were exposed to the light of a mercury lamp and darkening was measured with respect to the initial layer on Ye. A. Kirillov's unit at 710 m $\mu$  and on the IKS-12 spectrometer at 926 m $\mu$ . The layers were then developed (Metol hydroquinone developer, 1:20) and measured on a photoelectric densitometer. The resultant curves for aging (latent fog) and photolysis show pronounced periodicity. The periodic nature of these curves is retained on curves for the developed fog while development of the exposed layers results in an ordinary characteristic curve. Analysis of the experimental data shows that centers of latent fog have no catalytic activity in the useful aging region (up to  $S_{max}$ ), while the centers of the latent image, which accumulate rapidly during exposure, show high activity. This is the fundamental feature of a photographic emulsion responsible for selective development and the possibility of producing an image. Orig. art. has: 1 figure. [JPRS: 40,351]

Card 2/2



REEL # 87

CHERNYSHOVA, Ye. I  
TO

CHIBISOV, K. V.