

SHCHEGLOV, P.V.

Observation of the enhancement of the infrared helium line 10830 \AA
Astron.zhur. 39 no.1:158-159 Ja-F '62. (MIRA 15:2)

1. Gosudarstvennyy astronomicheskiy institut im. P.K.Shternberga.
(Twilight)
(Helium—Spectra)

AM4016111

BOOK EXPLOITATION

s/

Shcheglov, Petr Vladimirovich

Electron telescope (Elektronnaya teleskopiya) Moscow, Fizmatgiz, 63.
0194 p. illus., biblio. 4,000 copies printed.

TOPIC TAGS: electron telescope, electron optical conversion,
image amplification, electron photography, electron spectroscopy
fluorescent screen, photometry, spectrophotometry

PURPOSE AND COVERAGE: The book is intended to acquaint a large
circle of workers engaged in research on faint light with the pre-
sent status of the use of electron optical converters and image
amplifiers. It is aimed essentially at astronomic applications of
electron telescope. It deals with the application of electron-
telescopic procedures to astronomy and the combined utilization of
large telescopes and image amplifiers, with emphasis on the spectro-
scopy of the received light.

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SUB CODE: AS, SD, PG

SUBMITTED: 27May63

NR REF SOV: 036 .

OTHER: 026

DATE ACQ: 10Dec63

Card 3/3

ACCESSION NR: AT3008549

S/2984/33/000/000/0156/0158

AUTHOR: Shcheglov, P. V.

TITLE: A Fabry-Perot etalon for observations of weak emissions from heavenly bodies

SOURCE: Novaya tekhnika v astronomii; materialy*soveshch. Kordissii priborostroyen pri Astronom. sovete AN SSSR, Moskva, 18-20 apr. 1961 g. Moscov, Izd-vo AN SSSR, 1963, 156-158

TOPIC TAGS: Fabry and Perot etalon, vacuum magnification, interferometer, spectroscopy, interference filter

ABSTRACT: Vacuum magnification of an image with fluorescent screen does not have high resolving power. The author uses contact electro-optical converters with a resolving power of 0.05 mm and a working range of 10 mm, finding this system to be very efficient for spectroscopy. He has also used these image magnifiers in combination with interference monochromators. For the region of H_{α} the gain in exposure is a hundredfold, and, hence, such monochromators should be used for cutting down on cloud background when observing emission nebulae. The author has used an interference filter for the H_{α} line with $\delta\lambda = 40\text{\AA}$, for which the Fabry-
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Perot etalon is set up, with a coating reflectivity of 70% and a separator thickness of 0.3 mm. The instrumental contour in this arrangement is 0.8 Å. The equivalent width of the transmission band of continuous spectrum may be expressed by

$$W_{\phi} = W_{\phi} \frac{S^2}{1-r^2}$$

where W_{ϕ} is the equivalent width of the transmission band of the filter, S the transmissivity, and r the reflectivity of the cover of the Fabry-Perot etalon. The author used this instrument to record the ring from the nebula NGC 7000 and obtained a recognizable record with an exposure of 10 minutes. Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Gos. astronomicheskii institut im. Shternberga (State Astronomical Institute)

SUBMITTED: 00

DATE ACQ: 16Oct63

ENCL: 00

SUB CODE: AA, OP

NO REF SOV: 000

OTHER: 000

Card 2/2

SHCHELOV, P.V., kand.fiziko-matem. nauk

Plane hydrogen cloud around the earth. Priroda 52 no.8:35-38
Ag 1963. (MIRA 16:9)

1. Gosudarstvennyy, astronomicheskiy institut imeni Shternberga,
Moskva.

(Hydrogen) (Atmosphere)

SHCHEGLOV, P.V.

Dark current and autoelectronic emission of electron optical converters.
Soob.GAISH no.126:56-65 '63. (MIRA 17:2)

SHCHEGLOV, P.V.

Concentration of nightglow emission on the H α line toward
the ecliptic and radial velocities of this line. Astron. tsir.
no. 337 1964. (MIRA 1723)

1. Gosudarstvennyy astronomicheskiy institut imeni P.K. Shtern-
berga.

SHCHEGLOV, P.V.

Observations of an unusual nebula near the direction toward
the galactic center. Astron. tsir. no.240:2-4 Ap '63.
(MIRA 17:6)
1. Gosudarstvennyy astronomicheskiy institut imeni Shternberga.

10/10/1953

2. Report on the results of the investigation of the activities of the
CIA in the USSR, 1953.

3. Report on the results of the investigation of the activities of the
CIA in the USSR, 1953.

SHUBOLOV, I. V., red.; SHAROV, A. S. [translator]; MASSOLO, V. S.,
red.

[New methods in astrophysics. Translated from the English
and French] Novye metody v astrofizike. Moskva, Izd-vo
"Mir," 1964. 251 p. (MIRA 18:5)

SHCHEGLOV, P.V.

Concentration of the night sky H α emission toward the ecliptic
and the radial velocities of this line. Astron.zhur. 41 no.2:
371-377 Mr-Apr '64. (MIRA 17:4)

1. Gosudarstvennyy astronomicheskiy institut im. P.K.Shternberga.

ACCESSION NR: AP4040840

S/0033/64/041/003/0425/0429

AUTHOR: Gershberg, R. Ya.; Shcheglov, P. V.

TITLE: Investigation of radial velocities and inner motions of diffuse nebulae by means of a Fabry-Perot etalon

SOURCE: Astronomicheskii zhurnal, v. 41, no. 3, 1964, 425-429

TOPIC TAGS: diffuse nebula, interferometer, radial velocity, uniform brightness, thermal emission, supergiant star, dilatation velocity, proper motion, shock wave

ABSTRACT: The diffuse nebulae NGC 7000, NGC 6618, NGC 6523, NGC 1976, NGC 7822, and IC 1318a have been measured by means of an interferometer equipped with a filter for the H α line. Radial velocities were determined in all nebulae. The northern part of the nebula NGC 7000 is an emitting source of uniform brightness; its emission is of thermal nature and may be considered as due to thermal motion of the H II zone. The diffuse nebula NGC 6618 consists of filaments which are believed to be the result of the explosion of a supergiant star. The dilatation velocity of the envelope of this nebula is theoretically

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ACCESSION NR: AP4040840

determined to be 100 km sec^{-1} , but has not been proved experimentally. Velocities of various parts of the nebula in radial directions were found to range from -40 to $+61 \text{ km sec}^{-1}$. The velocity of the central part was found to be $+27 \text{ km/sec}^{-1}$. Measurements in the central, bright part of the nebula NGC 6523 yielded positive and negative velocities. This nebula is considered to be a dilating gaseous formation with an expansion velocity of 25 km sec^{-1} . The proper motion of the nebula is $+8 \text{ km sec}^{-1}$. The measured velocities in the nebula NGC 1976 exceed the thermal type and may be explained by weak shock waves. Orig. art. has: 4 figures and 2 formulas.

ASSOCIATION: Gos. astronomicheskii in-t im. P. K. Shternberga (State Astronomical Institute); Krymskaya astrofizicheskaya observatoriya Akademii nauk SSSR (Crimean Astrophysical Observatory, Academy of Sciences SSSR)

SUBMITTED: 12Dec63

ATD PRESS: 3060

ENCL: 00

SUB CODE: AA

NO REF SOV: 005

OTHER: 005

Card 2/2

L 15972-66 EWT(1)/EWA(h)

GS/CW

ACC NR: AT5027124

SOURCE CODE: UR/0000/65/000/000/0042/0042

AUTHOR: Shcheglov, F. V.

49
BT 1

ORG: none

TITLE: Requirements necessary for the operation of image translators (image converter tube) for astronomical study

SOURCE: AN SSSR. ^{12,55} Astronomicheskii sovet. ^{12,55} Komissiya priborostroyeniya. ^{12,55} Soveshchaniye. ^{12,55} Kazan 1964, ^{12,55} Novaya tekhnika v astronomii (New techniques in astronomy); materialy soveshchaniya, no. 2. Moscow, Izd-vo Nauka, 1965,

42

TOPIC TAGS: astronomy, electronic equipment, image converter, image tube

ABSTRACT: Electron-optical ²⁵ image converter tubes have been in use for the past 15 years. Therefore, it is possible now to summarize the requirements necessary for their operation. Evidently the optimal conversion factor is only slightly over 1000. But the problem still requires additional study. The simple sealed-

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ACC No: AT5027124

off systems have the best dark background. The amplification of cascade apparatuses in the Crimea Observatory had to be decreased to several hundreds to obtain a background comparable to that of the sky. This interfered with the normal work of the cascade converter and increased its sensitivity to magnetic interference. To date the literature mentions no spectrum of a weak object for registration in the cascade converter. The problem of photocathodes, the use of an electron camera, its focusing etc. are still to be solved. 0

SUB CODE: 03,03/SUBM DATE: 25Jun65/

bvk

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L 27472-66 EWT(1) GW

ACC NR: AP6016848

SOURCE CODE: UR/0026/66/000/005/0071/0081

AUTHOR: Shcheglov, P. V. (Candidate of physico-mathematical sciences) 21
B

ORG: State Astronomical Institute im. P. K. Shternberg (Gosudarstvennyy astronomi-cheskiy Institut)

TITLE: Eclipse in the Pacific Ocean

SOURCE: Priroda, no. 5, 1966, 71-81

TOPIC TAGS: eclipse, ~~Manuae expedition~~, total solar eclipse, corona, solar eclipse

ABSTRACT: A description and some preliminary results of the expedition of the scientific research vessel "Vityaz'" carrying a party of 24 Soviet astronomers to Manuae Atoll to observe the total solar eclipse of 30 May 1965 are given. Oceanographic investigations were also conducted at points along the cruise route — Vladivostok, Samoa, Manuae Atoll, the Hawaiian Islands, and Vladivostok. The Soviet expedition had at its disposal two high-quality spectrographs, several interference instruments, and radio telescopes. At the time (9^h26^m34^s) of totality, cloud conditions hindered visual observations. However, the interference instruments yielded valuable negatives, and direct long focal length and color photos were obtained. Some spectrograms of medium dispersion were obtained, but the high-dispersion spectrographs needed for the entire 220 seconds of totality were unsuccessful. Measurements of an interference photo of the solar corona obtained in the red line of FeX at a wave-

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ACC NR: AP6016848

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length of 6374 Å made it possible to determine the velocity of motion and the temperature of coronal matter. The radio telescopes were not affected by the overcast. A map depicting the path of totality and the route followed by the expedition vessel is included. Orig. art. has: 13 figures. [DM]

SUB CODE: 03, 04/ SUBM DATE: none/ ATD PRESS: 4260

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BLG.

Reel #503
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