NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.
FOREWORD

This publication was prepared under contract for the Joint Publications Research Service as a translation or foreign-language research service to the various federal governments.

The contents of this material in no way represent the policies, views or attitudes of the U. S. Government or of the parties to any distribution arrangement.

PROCUREMENT OF JPRS REPORTS

All JPRS reports may be ordered from the Office of Technical Services. Reports published prior to 1 February 1963 can be provided, for the most part, only in photocopy (xerox). Those published after 1 February 1963 will be provided in printed form.

Details on special subscription arrangements for JPRS social science reports will be provided upon request.

No cumulative subject index or catalog of all JPRS reports has been compiled.

All JPRS reports are listed in the Monthly Catalog of U. S. Government Publications, available on subscription at $4.50 per year ($6.00 foreign), including an annual index, from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

All JPRS scientific and technical reports are cataloged and subject-indexed in Technical Translations, published semi-monthly by the Office of Technical Services, and also available on subscription ($12.00 per year domestic, $16.00 foreign) from the Superintendent of Documents. Semiannual indexes to Technical Translations are available at additional cost.
ABSTRACTS PERTAINING TO COMMUNIST CHINA
IN SOVIET ABSTRACTS JOURNALS
No. 60.
(Astronomy Series)

This serial publication contains translations of abstracts pertaining to Communist China published in Referativnyy Zhurnal, Astronomiya (Soviet Abstracts Journal, Astronomy Series), No 11, 1962.

Table of Contents

<table>
<thead>
<tr>
<th>No 11, 1962</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radioastronomy</td>
<td>1</td>
</tr>
<tr>
<td>Sun</td>
<td>1</td>
</tr>
<tr>
<td>Photosphere, Chromosphere</td>
<td>1</td>
</tr>
</tbody>
</table>
TSINO Jung-bao

Observation of Source Sagittarius A at a Frequency of 1,500 Megacycles per Second


The author's model was constructed on the basis of data obtained by him on radiation of the source Sagittarius A at a frequency of 1,500 megacycles per second \( (Fv = 1260 \times 10^{-26} \text{ watt/m}^2 \text{ c p s}, \phi = 0.037) \). Appraisals of a number of stars of various spectral classes, necessary for the excitation of the source, are cited. Nine references.

YEH Shih-huei

Investigation of Excitation and Ionization of Hydrogen in Solar Protuberances

Izv Krymsk astrofiz observ (News of the Krim Astrophysical Observatory) 1961, 25, pp 234-245 (English summary)

The theoretical analysis of experimental data published previously by author is presented. In order to appraise the role of the various elementary processes from the experimental data on the number of atoms in luminous radiation, the concentrations were computed for one of the protuberances on the basis of the assumption that the linear width of the protuberance is \( 10^5 \text{ cm} \). The following were calculated for various levels in the function of electronic concentration \( n_e \) and concentration of the neutral hydrogen \( n_i \): the photoionization and the photoexcitation, the excitation, attenuation, and ionization by electronic shock; the number of the spontaneous transitions and photo recombinations. The author disregards the ionization engendered by the short wave radiation of the corona and transition layer as well as the photoexcitation of the
third degree engendered by photospheric radiation. The results of the computations are shown in tables. The equation system for stability is solved; it is presumed here that the number of spontaneous transitions $L$ is balanced by the photoexcitation and the number of the photoionizations is equal to the number of the photorecombinations. We obtained: $n_e = 1.22 \times 10^{11}$ cm$^{-3}$ and $n_1 = 4.8 \times 10^{11}$ cm$^{-3}$ which is greater than $n_2$ by 6 orders. It was found that in the results obtained the number of photoionizations was equal to the number of photorecombinations. A graphic comparison of the efficiency of the various processes for various levels is shown. The following conclusions are drawn: 1) the excitation of hydrogen atoms in the protuberances is determined mainly by their own radiation; 2) the excitation by their own radiation and the spontaneous transitions almost fully compensate one another; 3) high-grade ionization of the hydrogen atoms is chiefly caused by electronic shock, while photoionization plays a great role in low-grade ionization; 4) the congestion of the high grades is caused by recombination; 5) excitation by electronic shock and lessening of collision play a relatively unimportant role. The conclusions tally well with the initial assumptions accepted in the investigations of the elementary processes. Six references. O. Ivanov-Kholodovy