ences on recombination radiation, under the influence of a beam of fast electrons, from certain semiconductors grown at the Institute. These investigations add to the presently available information concerning the parameters of semiconducting materials. A study is made of the influence of impurities and growth methods on the spectrum, power, and temporal characteristics of the recombination radiation of the ternary compounds $CdIn_2S_4$, $CdGa_2S_4$, and $ZnIn_2S_4$. The influence of the quality of the crystal on the properties of the radiation of GaSe is investigated.

I. M. Kopylov. Results of Investigations on the Physics of Stars at SAO Observatory of the USSR Academy of Sciences During the Last Two Years.

Work on the physics of stars and nebulas at the SAO Observatory of the USSR Academy of Sciences was initiated in 1967, after organization of an appropriate topical group.

1. Wolf-Rayet stars. S. V. Rublev has developed theoretically the following: a procedure for determining the electron temperatures of the envelopes of Wolf-Rayet stars, a procedure for estimating the relative abundance of hydrogen and helium in the atmospheres of these stars. The absolute magnitudes of several dozen Wolf-Rayet stars have been determined.

2. Planetary nebulas. S. V. Rublev proposed a new method for calculating the theoretical Balmer decrement for planetary nebulas, which gives better agreement with observation than previously obtained.

3. A group of members of the SAO Observatory, headed by Yu. V. Glagolevskiĭ, carried out spectrophotometric studies of the so-called "magnetic stars." For several stars of this type, the chemical composition and the physical conditions in the atmosphere were determined by Yu. V. Glagolevskiĭ (temperatures, turbulent velocities, densities, etc.). The hydrogen spectrum of α^2CV_n was investigated; this is a remarkable star of this type (including the use of spectrograms with a dispersion of 1.3 Å mm). A connection was established between the changes of the intensity of the hydrogen lines (the nuclei of the lines in the last observed numbers of the Balmer series) with the period of variation of the magnetic field of the star. K. I. Kozlova and R. N. Gumaĭgorodskaya presented preliminary interpretations.

V. V. Lenshin is developing a system for quantitative three-dimensional spectral classification of stars of this type using several hundred spectrograms of 56 stars of this type.

4. A statistical study of the changes of the laws governing the rotation of hot stars during the course of evolution within the limits of the main sequence has shown that in the region of location of magnetic and peculiar A-stars the law of constancy of the (observed) angular momentum is violated.

The dependence of the average rotation velocity on the mass of the star (for recently formed stars) has a maximum for stars B with masses equal to 5—9 solar masses, but even the most rapidly rotating stars do not reach critical velocity (I. M. Kopylov).

5. An analysis of the Procyon spectrograms, obtained with high dispersion, has made it possible to determine, by the growth-curve method, the previously unknown oscillator strengths of more than 300 lines of ionized metals. The accuracy of such determinations is comparable with the laboratory accuracy (A. M. Bogudlov).

A thorough spectrophotometric study was made of four cold stars of spectral class K. The physical parameters of the atmospheres and their chemical composition have been determined (N. F. Voĭkhanskaya).

6. A Comparison of the "dynamic" accelerations of the force of gravity on the surfaces of supergiant stars, obtained from the masses and radii of these stars, with the "spectrocosmical" values, obtained from a comparison of the observed contours and intensities of the hydrogen lines with the theoretical ones, has shown good agreement. In earlier investigations, the discrepancies reached 1.5—2 orders of magnitude (I. M. Kopylov).

7. E. L. Chentsov has shown that large differential displacements of the lines of neutral helium compared with the lines of the metal ions in the spectra of the supergiants cannot be attributed to the Stark effect, but are due to the stratification and dynamics of the extended atmospheres of such stars.

8. Yu. P. Korovyakovskiĭ calculated theoretically the trajectories of gas streams in close binary stars of the dwarf type, determined the rates of encounter of the stream with the envelope of the principal stars, the coefficients of the encounter "points," and the dimensions of the so-called "hot spot."

9. Yu. P. Korovyakovskiĭ and A. A. Korovyakovskaya, during the time of their year and a half stay at the Crimean Astrophysical Observatory of the USSR Academy of Sciences, have carried out, in collaboration with the staff members of that observatory, investigations of exploding stars of the UV Ceti type.

In the first two volumes of the Izvestiya SAO AN SSSR and other publications, approximately 15 articles of the staff members of the SAO Observatory on physics of stars and nebulas have been published or submitted. The research work on these topics has been carried out at the Observatory with allowance for the forthcoming work on the large telescope. Light-receiving apparatus for the telescope has been developed in order to carry out investigations in this field.

G. F. Sultanov. Features of the Structure of the Planetoid Belt and Their Explanation.

Planetoids occupy a special place in the solar system. Their number increases every year, and their shapes are irregular and fragmentized. They move essentially in a belt and are contained between the orbits of Mars and Jupiter. Moreover, depending on the parameters of the motion, the entire aggregate of the planetoids is subdivided into a number of individual groups (families).

This structural feature of the family of planetoids is already of great interest among astronomers. The astronomers have long thought that the features of the structure of the planetoid belt can be explained to some degree by some hypothesis concerning the origin of the planetoids.

So far, there is no universally accepted hypothesis