

INTRODUCTION

The Seventh Conference of the participants of the Subproject No. 4 "Magnetic stars" of the multilateral cooperation of the Academies of Sciences of Socialist countries on the problem "Physics and Evolution of stars", organized by the Astronomical Council and the SAO of the USSR AS, was held in the SAO, from October, 12 to October, 17, 1987. The Scientific Organizing Committee included:

N. Schoneich - the Chairman,
A. Z. Dolginov,
Yu. V. Glagolevskij,
V. L. Khokhlova,
I. M. Kopylov,
F. Krause,
J. Madej,
K. Panov,
E. Zelvanova,
J. Zverko.

The Local Organizing Committee consisted of:

Yu. V. Glagolevskij - the Chairman,
I. I. Romanyuk - the secretary,
I. N. Kopylov,
V. D. Bychkov,
V. G. El'kin,
F. G. Kopylova,
L. I. Spangenberg,
V. G. Pastukhova.

In the present issue the complete reports or report theses read at the Conference are published.

The Conferences of members of multilateral cooperation on stellar magnetism investigation are being organized regularly, usually once in two years, in various observatories. We may confidently say that the interest to the problem is ever growing, though it is considerably complicated both in theory and in observations. It should be noted that together with the mass accumulation of observational data a special attention is paid to purposeful observations for solving the concrete tasks. The problem of chemically peculiar stars is in its most interesting stage at present, when all the earlier obtained results are actively inter-

preted. The most important problems: origin and evolution of magnetic fields and chemical anomalies, interaction of magnetic fields and stellar matter are being analyzed. The traditional observational data accumulation by the known methods is still an actual task, since there is still few data for statistical investigations and for elucidations of necessary properties. Especially scarce are the data on surface magnetic fields, moreover, they are not quite correct. Very large discrepancies are between important parameters, for example, rotational velocities $v \sin i$. The data on the character of chemical element distribution along the surface relative to the magnetic field configuration are poor, the data on dipole orientation and on location of magnetic field poles on the surface are not accurate enough. All this is important for understanding of the role of magnetic fields in chemical anomalies. As seen from the reports presented, a considerable interest has arisen to investigations of earlier stages of CP star evolution, just the period when the whole set of magnetic star peculiarities was formed. Highly actual direction of investigations is the study of magnetic field generation conditions. The specialists dealing with a narrow problem of CP stars are expanding their interest to the adjacent fields of investigation. More coordinated and intercommunicated joint investigations of the observers and the theorists dealing with generation of magnetic fields and calculation of the scenarios of earlier stages of star evolution are needed. An important field is a study of stellar instationarities in the early stages of their evolution and of the role of magnetic fields in active processes in young star atmospheres. A study of magnetic fields of supergiants might specify the conditions of their generation in turbulent atmospheres. It was noted at the Conference that the united efforts of scientists of various observatories and countries will lead to a considerable progress in investigations. The Conference stressed the special importance of the following directions in the future investigations:

- 1). Investigation of CP stars with anomalous He lines;
- 2). Further photoelectrical observations of CP stars (multi-colour, including narrow-band);
- 3). Spectral investigations using the equipment with high signal-to-noise ratio;
- 4). Development of new equipment for CP stars investigations using the methods of broad-band polarimetry; for measurements of 4 Stokes parameters;
- 5). A study of the nature of magnetic fields and chemical anomalies; the development of non-linear tasks being highly desirable;
- 6). For success solution of the problem of stellar magnetism it is necessary to widen the theme by including into the

program of subproject together with CP-stars other star classes with magnetic field manifestations, being at considerably different evolution stages.

The organizing Committee decided to ask the Polish Academy of Sciences to consider the possibility of conducting the regular Eighth Magnetic Stars Conference in Poland, in 1989.

I. M. Kopylov

Yu. V. Glagolevskij

LIST OF PARTICIPANTS

BULGARIA

Iliev I. Kh.
Panov K. P.

CZECHOSLOVAKIA

Hric L.
Mikulasek Z.
Ziznovsky J.
Zverko Yu.

DDR

Gerth E.
Hempelmann A.
Hubrig S.
Krause F.
Lehman A.
Oetken L.
Radler K-H.
Scholz G.
Schoneich W.
Zelvanova E.

POLAND

Madej J.

USSR

Bychkov V. D.
Bychkova L. V.
Davydova E. S.
Dolginov A. Z.
Dudorov A. E.
El'kin V. G.
Fabrika S. N.
Gailitis A. K.
Glagolevskij Yu. V.
Kleorin N. I.
Klochkova V. G.
Klyachkin A. V.
Kopylov I. M.
Kopylova F. B.
Lebedev V. S.
Leushin V. V.
Malonushenko V. P.
Mkrtichian D. E.
Naidenov I. D.
Panchuk V. E.
Piskunov N. E.
Plachinda S. I.
Pustil'nik L. A.
Romanov Yu. S.
Romanyuk I. I.
Ryabchikova T. A.
Savanov I. S.
Silant'ev N. A.
Skul'skij M. Yu.
Shtol' V. G.
Topil'skaya G. P.
Udovichenko S. N.
Zajkova L. P.