

## 43. COMMISSION DE LA MAGNETO-HYDRODYNAMIQUE ET DE LA PHYSIQUE DES GAZ IONISES

### Report of Meeting, 26 August 1964

PRESIDENT: H. Alfvén.

SECRETARY: G. Haerendel.

#### Business Meeting

R. Lüst reported on the state of the Proceedings of the IAU Symposium no. 22 held in Rottach-Egern (Germany), 1963, on 'Stellar and Solar Magnetic Fields' and announced the publication at the end of 1964 (North-Holland Publishing Co., Amsterdam).

*Future of the Commission:* It was proposed by the President and the Organizing Committee that, if they were willing to serve, L. Spitzer, Jr., and T. G. Cowling be nominated for future President and Vice-President, respectively, of Commission 43, and that the Organizing Committee consist of: H. Alfvén, L. Biermann, and A. B. Severny. These proposals were accepted unanimously. The list of new members of the Commission was presented.

Since no corrections or additions were suggested for the Draft Report, it was adopted in its original form.

*Resolution:* L. Davis, Jr., wanted the Commission to express in a resolution its general interest in problems of the interplanetary medium and the participation in or even organization of conferences in this topic. This suggestion was supported and discussed by: H. Alfvén, L. Biermann, T. G. Cowling, and R. Lüst. Immediately after the meeting the President, the Organizing Committee, L. Davis, Jr., and R. Lüst continued the discussion about the resolution. Finally, T. G. Cowling and G. Haerendel were requested to prepare a draft expressing the sense of the Commission.

*Text of the Resolution:* Whereas interplanetary space is the only region in which direct measurements, and even planned experiments, can be carried out on magnetized cosmic plasmas, the understanding of which is basic in many problems of interstellar and extra-galactic space; and whereas problems of the interaction of cosmic rays with magnetic plasmas are becoming recognized as an essential part of astrophysics;

Commission 43, through its Organizing Committee, asks that the IAU should take it on itself to sponsor from time to time, where appropriate in co-operation with other unions, conferences and symposia that will keep its members in contact with the most recent work on interplanetary plasma and cosmic rays, and will foster international co-operation in their understanding.

#### Scientific Session

L. Biermann gave a summary of the Jet Propulsion Laboratory Symposium on the Solar Wind at Pasadena, California, on 1-4 April 1964. As the Proceedings of this symposium are to be published, no abstract is presented here. Also reference is made to the Proceedings of the 5th International Space Science Symposium, Florence, 1964.

In the discussion, P. A. Sturrock raised the question of which equations are appropriate to describe the interplanetary plasma and referred to the theory of Chew, Goldberger, Low.

R. Steinitz, in a report on the theory of magnetic stars, compared the oscillator and oblique rotator model and discussed their major difficulties. Concerning the latter model they are: the

existence of irregular variables, the observed line width which is only about one half as great as would be expected from their period on reasonable assumptions about the other parameters, and the correlation of the light variations with the sign of the magnetic field. The observational facts that the oscillator model has difficulties to account for are: the periods of a few days together with the reversal of polarities during that time. Steinitz then indicated how some of the objections against the oblique rotator model can be resolved; in particular, upon close inspection, some of the irregular variables turn out to be periodic. Finally, he stressed the importance of measurements of the polarization and its variations which after Thiessen seem to have only half the period of the light and magnetic variations. (R. Steinitz, 'Studies on Magnetic Stars', Thesis, Leiden, 1964).

*D. H. Menzel* presented calculations of sunspot models based on the Cowling model.