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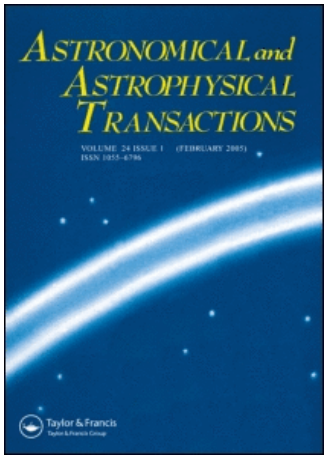

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Book review

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BOOK REVIEW

N. G. Bochkarev. Local Interstellar Medium Moscow, Nauka, 1990.

Usually, the Local Interstellar Medium (LISM) is referred to as the medium within 150–200 pc from the Sun, in the volume, most part of which is occupied by an expanding cavity with tenuous, hot gas. LISM is extremely nonhomogeneous as regarding physical properties of its gas; abundant set of data, obtained during its studies, gives an impetus to a better understanding of evolution of interstellar gas in galaxies and of its interaction with young stars.

Hundreds of works are dedicated to studies of LISM. In N. G. Bochkarev's book, an attempt is made to summarize and analyse the main results concerning LISM. A sufficiently complete review is given of the existing ideas on LISM, born mostly in the last 8–10 years. The book consists of 10 chapters and contains an extensive reference list numbering about 600 works.

Chapter 1 (Introduction) gives a general overview of LISM.

In Chapter 2 the circumsolar medium and interaction of the solar wind with the surrounding interstellar gas are considered.

Chapter 3 is devoted to various methods of investigation of the nearby regions of LISM by means of observations in the optical, ultraviolet, and infrared ranges of the spectrum.

In Chapter 4 the author is considering the observational properties of the interstellar cloud that is closest to us: the solar system is probably located in its outer "warm" and tenuous corona.

In Chapter 5 the distribution of matter outside the Local Cloud is considered, the observational data are presented for cold molecular clouds, high-latitude gas as well as for the Local System of the stars forming the so-called Gould's Belt.

The hot ionized component of LISM is discussed in Chapter 6. In particular, the author is treating the problem of low-brightness emission-line regions, of soft X-ray background radiation of gas and of the nature of absorption lines of multiply charged ions.

The Scorpio-Centaurus Association, located near the centre of the giant cavity, is discussed in Chapter 7. Here, also the influence of stellar wind on heating and radiation of gas is considered.

In Chapter 8 the author dwells upon the general structure of LISM and the distribution of soft X-ray radiation over the sky. Here, attention is drawn to some interesting X-ray features, for example, an X-ray "shadow" behind dense clouds that protect gas against impact of a shock wave, and bright X-ray spots, associated with a shock front flowing around the Local Cloud.

Chapter 9 deals with the large-scale structure of LISM and to the process of its formation. The author discusses the role of supernova remnants in formation and evolution of cavities around OB-associations. The available observational data on the existence of coronal-gas cavities in nearby galaxies are considered.

In the closing Chapter 10, the author summarizes the totality of data on the structure and physical parameters of LISM and enumerates on the most promising, from his point of view, observational and theoretical problems connected with LISM studies.

As far as the topic is concerned, this book has no analogs, both in Russian- and English-language literature. N. G. Bochkarev is a well-known investigator in the domain of interstellar-medium studies. His original results have found their place in the book together with other authors' results. Therefore, this book is of interest for both the readers just starting their work on interstellar medium, and skilled investigators of this subject.

The book is written at a highly professional level. However, to be quite just, it ought to be noted that it is lacking, even in a brief outline, theoretical fundamentals of physics of interstellar medium and shock waves. Because of this, the author often restricts himself to a purely descriptive physical picture of a phenomenon.

The book is addressed to a wide circle of research workers, students and post-graduate students in the field of physics and astrophysics.

A. V. Zasov