

supersymmetry and conformal symmetry is potentially of great interest in connection with attempts to describe particle physics beyond the Standard Model, critical and other condensed-matter phenomena, and string/M theory. In view of their extraordinary virtues, mentioned above, I can enthusiastically recommend Shifman's monographs as essential supplementary reading for any of the topics they touch. But don't expect a balanced description of QCD.

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Introduction to Stellar Winds

▶ Henny J. G. L. M. Lamers
and Joseph P. Cassinelli
Cambridge U. P., New York, 1999.
438 pp. \$74.95 hc (\$29.95 pb)
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(0-521-59565-7 pb)

Stellar winds play a role in the evolution of nearly all stars at some point in their history. Stellar winds also pump energy into the material surrounding the stars, and they return chemically reprocessed material to

and create many of the visible structures in the interstellar medium. Some of the physical processes that are involved in driving stellar winds are also important in accretion disks in, for example, binary stars and active galactic nuclei. Although the subject has been at the forefront of astronomical research for more than 30 years (more than 50 years for the Sun), no one has written an overview of the subject suitable for classroom teaching or for self-learning. Both theory and observational results are widely scattered through the literature and take some effort to find. Henny Lamers and Joseph Cassinelli have now solved this problem with *Introduction to Stellar Winds*, an elegant book about stellar winds and mass loss that is a masterpiece of thoroughness, organization, and clarity.

The book can be divided into four parts: The first part is a very short chapter on the history of the field. The second is a very clear chapter on the observations of stellar winds and mass loss. The third part, the bulk of the book, describes the basic concepts (chapters 3 and 4), the mechanisms for driving winds from stars (chapters 5 through 10), and mechanisms for driving disks from rotating stars (chapter 11). In the fourth part, the authors describe the interactions between winds and the interstellar medium and the effects of mass loss on stellar evolution.

Most chapters begin with a short summary of the pedagogical aims and contents of the chapter and end with a clear summary of the results derived in the chapter. Line drawings are used liberally and very effectively to illustrate the concepts. There is a short list of relevant review papers at the end of each chapter. References in each chapter are collected in a master reference list at the end of the book. A few problems are provided for each chapter.

Each of the chapters, except chapters 3 and 4, stands alone. However, anyone interested in a chapter later than chapter 4 would benefit from reading chapters 2 through 4 first. The book could be used as the text for a full graduate course, or part of it could be used for a graduate minicourse.

Introduction to Stellar Winds is sure to be a classic of the astronomical literature and should be on the shelves of every astronomy library. Many individual astronomers will also find it a useful addition to their personal libraries.

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