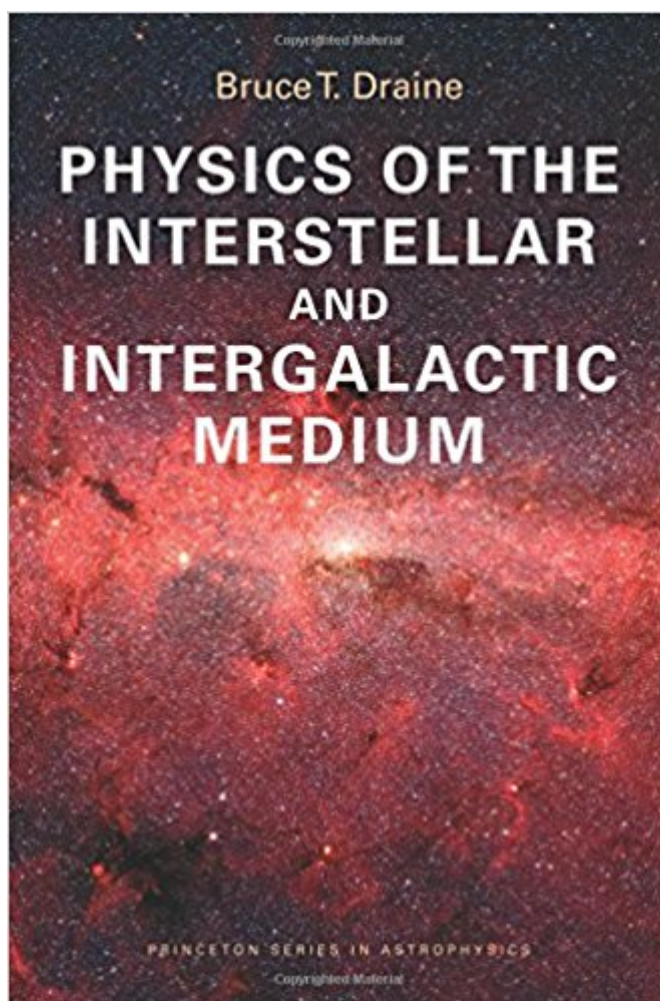




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# **Physics Of The Interstellar And Intergalactic Medium (Princeton Series In Astrophysics)**



## Synopsis

This is a comprehensive and richly illustrated textbook on the astrophysics of the interstellar and intergalactic medium--the gas and dust, as well as the electromagnetic radiation, cosmic rays, and magnetic and gravitational fields, present between the stars in a galaxy and also between galaxies themselves. Topics include radiative processes across the electromagnetic spectrum; radiative transfer; ionization; heating and cooling; astrochemistry; interstellar dust; fluid dynamics, including ionization fronts and shock waves; cosmic rays; distribution and evolution of the interstellar medium; and star formation. While it is assumed that the reader has a background in undergraduate-level physics, including some prior exposure to atomic and molecular physics, statistical mechanics, and electromagnetism, the first six chapters of the book include a review of the basic physics that is used in later chapters. This graduate-level textbook includes references for further reading, and serves as an invaluable resource for working astrophysicists. Essential textbook on the physics of the interstellar and intergalactic medium Based on a course taught by the author for more than twenty years at Princeton University Covers radiative processes, fluid dynamics, cosmic rays, astrochemistry, interstellar dust, and more Discusses the physical state and distribution of the ionized, atomic, and molecular phases of the interstellar medium Reviews diagnostics using emission and absorption lines Features color illustrations and detailed reference materials in appendices Instructor's manual with problems and solutions (available only to teachers)

## Book Information

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## Customer Reviews

"This is a comprehensive and richly illustrated textbook on the astrophysics of the interstellar and intergalactic medium. . . . This graduate-level textbook includes references for further reading, and serves as an invaluable resource for working astrophysicists."--Lunar and Planetary Information Bulletin

"This is the book that I have been waiting for for twenty years. With exceptional clarity, Draine introduces the underlying physics and brings the basic pieces together to describe the multiphase structure of the interstellar and intergalactic medium. Combined with many useful tables and figures, this book will rapidly become a hit with students and researchers alike. It continues the fine tradition of Princeton professors writing seminal books on this topic."--Ewine van Dishoeck, Leiden

University"A true tour de force, providing a definitive account of the physics of interstellar matter. Written with authority and insight by a master of the subject, Bruce Draine's book will be a treasured guide for new graduate students as well as a comprehensive and rigorous reference for galactic and extragalactic researchers."--Eve Ostriker, University of Maryland

"Draine has written an interstellar-medium textbook worthy of Lyman Spitzer, updated thirty years later. His coverage of atomic, molecular, radiative, thermal, and dynamical processes is excellent. Most valuable to students and professionals are the combinations of physical processes with multiwavelength observations appropriate for the modern astronomer."--J. Michael Shull, University of Colorado at

Boulder"This book is a comprehensive account of the physical processes that take place in the interstellar medium and that determine its behavior. It is likely to become the bible on the

subject."--Alexander Dalgarno, Harvard University"This is an outstanding text on an important topic in astrophysics. Draine carefully goes into the physical processes, providing a unifying discussion that is often missing in other treatments."--Christopher F. McKee, University of California, Berkeley

If you want to know what "out there" is like most everywhere, then this is the book to ameliorate your ignorance. The result of a graduate course in the topic taught for 20 years, the author has had time to 'get his ducks in line' on the topic, and describe it well and clearly.

This review is not saying anything about Bruce Draine's writing, but about the Kindle conversion, which makes the book difficult and annoying to read. There are random characters, mostly mathematical ones, rendered as huge, pixelated images sometimes but correctly in other places. All equations are cut off on the left side so you can barely tell what is on the left side of the equal sign,

and they are generally faint and hard to read. Given that the Kindle version is 2/3 of the paperback price, I expect it to not look like a web page from 1999 created with latex2html. Go with the paper version.

Another fantastic informative text from Princeton university about galaxy and star formation!!!

Not a fast read but loaded with the details. Also good for a quick reference

This book extensively describes the physics needed to understand the ISM and then proceeds with a very clear description of the many environments in which ISM occurs

Good condition

Dr. Lyman Spitzer's book has been the benchmark in this field for nearly 30 years and some of the content has become outdated. Dr. Draine's book brings together a vast array of topics and is encyclopaedic in nature. However, it is not a very easy read and there are certain derivations that one needs to work out by oneself. It also calls for a fairly extensive (though not too advanced) knowledge of the underlying physics. Perfectly suitable for graduate students and researchers in the field. In particular, I found the sections on radiative processes and fluid dynamics to be very well done. The discussion of ionized gas in the HII regions is also noteworthy. The most impressive aspect of the book is its vastness. It covers virtually every topic possible regarding the ISM and the IGM and has everything from statistical physics to grain dynamics to star formation. There is a very good description of the properties of dust and its effects on various phenomena. The only slight flaw of the book is that it does not go very deep into any of these chapters. But, as a starting point for nearly any and every topic in this field, the book is almost unparalleled.

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