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Physics : Astronomy, Observations and Techniques

Yamamoto, Satoshi

Introduction to Astrochemistry

Chemical Evolution from Interstellar Clouds to Star and Planet Formation

- Draws on fundamental physics and chemistry to furnish an overview of the exotic and complex chemistry occurring in star-forming clouds
- Provides a basic understanding of astrochemistry, helping readers to better interpret data from the Atacama Large Millimeter/Submillimeter Array (ALMA), the first global telescope
- Describes chemical evolution from interstellar clouds to planetary systems, in contrast to the conventional approach of studying pre-solar materials in the solar system

This important book describes the basic principles of astrochemistry—an interdisciplinary field combining astronomy, physics, and chemistry—with particular emphasis on its physical and chemical background. Chemical processes in diffuse clouds, dense quiescent molecular clouds, star-forming regions, and protoplanetary disks are discussed. A brief introduction to molecular spectroscopy and observational techniques is also presented. These contents provide astronomers with a comprehensive understanding of how interstellar matter is evolved and brought into stars and planets, which is ultimately related to the origin of the solar system. The subject matter will also be understandable and useful for physical chemists who are interested in exotic chemical processes occurring in extreme physical conditions. The book is a valuable resource for all researchers beginning at the graduate level.

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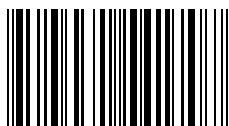
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