

<<Molecular collisions>>

图书基本信息

书名：<<Molecular collisions in the interstellar medium星际物质的分子碰撞>>

13位ISBN编号：9780521844833

10位ISBN编号：0521844835

出版时间：2007-3

作者：Flower, David

页数：187

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

## <<Molecular collisions>>

### 内容概要

In the interstellar medium - the space between the stars in galaxies - new stars are born from material that is replenished by the debris ejected by stars when they die. This book is a comprehensive manual for studying the collisional and radiative processes observed in the interstellar medium. This second edition has been thoroughly updated and extended to cover related topics in radiation theory. It considers the chemistry of the interstellar medium both at the present epoch and in the early Universe, and discusses the physics and chemistry of shock waves. The methods of calculation of the rates of collisional excitation of interstellar molecules and atoms are explained, emphasising the quantum mechanical method. This book will be ideal for researchers involved in the interstellar medium and star formation, and physical chemists specialising in collision theory or in the measurement of the rates of collision processes.

## &lt;&lt;Molecular collisions&gt;&gt;

## 书籍目录

1 Interstellar molecules 1.1 Introduction 1.2 Chemistry in interstellar clouds 1.3 Chemical bistability in dense clouds  
 2 Interstellar shocks and chemistry 2.1 Introduction 2.2 The MHD conservation equations 2.3 The structure of interstellar shock waves 2.4 Shock waves in dark clouds 2.5 Shock waves in diffuse clouds  
 3 The primordial gas 3.1 Introduction 3.2 The governing equations 3.3 The role of molecules 3.4 Chemistry 3.5 Gravitational collapse  
 4 The rotational excitation of molecules 4.1 Introduction 4.2 The Born-Oppenheimer approximation 4.3 The scattering of an atom by a rigid rotator 4.4 The rotational excitation of non-linear molecules  
 5 The vibrational excitation of linear molecules 5.1 Introduction 5.2 The scattering of an atom by a vibrating rotor 5.3 Excitation of H<sub>2</sub> and HD in collisions with H<sub>2</sub> molecules 5.4 Cooling functions  
 6 The excitation of fine structure transitions 6.1 Introduction 6.2 Theory of fine structure excitation processes  
 7 Radiative transfer in molecular lines 7.1 Introduction 7.2 The radiative transfer equation 7.3 The OH radical 7.4 Producing population inversion 7.5 Rotational excitation of OH by H<sub>2</sub>  
 8 Charge transfer processes 8.1 Introduction 8.2 The Landau-Zener model 8.3 The 'orbiting' model 8.4 The quantum mechanical model 8.5 Selective population of excited states  
 9 Electron collisions 9.1 Introduction 9.2 Selection rules and LS-coupling 9.3 Electron collisional excitation 9.4 Resonances 9.5 Forbidden line emission from Herbig-Haro objects  
 10 Photon collisions 10.1 Introduction 10.2 The oscillator strength 10.3 The transition probability 10.4 Photoionization and radiative recombination 10.5 Radiative transitions in molecules  
 Appendix 1 The atomic system of units  
 Appendix 2 Reaction rate coefficients  
 References  
 Index

<<Molecular collisions>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>