

# 《动力学阿尔文波》

## 图书基本信息

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## 内容概要

第1章简要介绍磁等离子体的基本物理过程和描述方法，主要为不具备等离子体物理背景的读者提供必要的基本概念和基础知识。第2-5章系统地介绍动力学阿尔文波的理论，包括动力学阿尔文波的基本物理特性（第2章）、不稳定性和产生机制（第3章）、非线性孤立结构（第4章）和复杂成分等离子体中的动力学阿尔文波（第5章）。第6章主要介绍地面和空间等离子体中动力学阿尔文波的实验研究。第7 - 9章将聚焦在动力学阿尔文波在空间和太阳等离子体活动现象的应用上，包括极光高能电子加速现象（第7章）、日冕磁等离子体结构非均匀加热现象（第8章）、以及日冕重离子反常加热现象（第9章）。最后的第10章是关于动力学阿尔文波这一领域进一步发展展望的一个简单评述。

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## 编辑推荐

吴德金研究员10多年来一直致力于动力学阿尔文波的理论和应用研究，有关研究成果曾获得“江苏省2006年度科技进步一等奖”。由他撰写的《动力学阿尔文波--理论实验和应用(精)》这部学术专著不仅系统阐述了动力学阿尔文波的物理特性、基本理论和实验研究，也深入地介绍了他与合作者在这一国际前沿领域的最新研究成果，特别是动力学阿尔文波在极光高能电子加速、日冕等离子体非均匀加热、以及延伸日冕中少量重离子“反常加热”等粒子能化现象中的应用。来自比利时“空间和高层大气物理学”研究所（Belgian Institute for Space Aeronomy）的物理学家Yuriy M. Voitenko教授在为该书撰写的序言中推荐该书弥补了近20年来动力学阿尔文波研究领域里的一项空白。

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