

<<企鹅物理学词典-英文>>

图书基本信息

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内容概要

《企鹅物理学词典(英文)》共收入4500个词目，提供了物理学专业词汇最新的权威性解释。为参照起见，同时收入了相当数量的相关学科，包括物理化学、天文学、医学物理、计算机及工程技术等方面的专业术语。

书籍目录

PREFACE NOTES DICTIONARY OF PHYSICS Table 1 : Conversion Factors Table 2 : Base SI Units Table 3 : Prefixes used with SI units Table 4 : Derived SI units with Special Names Table 5 : Fundamental Constants Table 6 : Spectrum of Electromagnetic Radiation Table 7 : Long-Lived Elementary Particles Table 8 : Periodic Table of the Elements Table 9 : Symbols for Physical Quantities Table 10 : Symbols used in Electronics Table 11 : The Greek Alphabet

章节摘录

版权页：插图： cold fusion Nuclear fusion occurring at normal temperatures rather than at the high temperatures necessary to overcome electrostatic repulsive forces between nuclei. There have been two main approaches to producing fusion at low temperatures. One is an electrolytic method; it has been suggested that, under certain conditions, electrolysis of deuterium oxide using a palladium cathode can produce low-temperature nuclear fusion. Deuterium ions liberated at the cathode are absorbed in the crystal lattice of the electrode, where they are forced together, thus overcoming the repulsive electrostatic force. However, claims that high-energy outputs using this method have been obtained have not been reproduced; the necessary output of neutrons for a genuine fusion reaction has not been detected. The other approach to cold fusion has been to shield one of the deuterium atoms by binding it with a negative muon. In this technique a muon replaces an electron in a deuterium atom. Because the muon is 207 times heavier than the electron, the resulting muonic atom of deuterium is much smaller and is able to approach another deuterium atom more closely, allowing nuclear fusion to occur. The muon is then released to form another muonic atom, and so on; i.e. the muon acts as a catalyst for the fusion reaction. One problem with this approach is the short lifetime of the muon, which restricts the number of fusion reactions it can catalyse.

cold trap A tube, cooled with liquid air, or dry-ice (frozen carbon dioxide) in acetone, that will condense vapour passing into it.

collective excitations Quantized modes in a many-body system that arise when cooperative motion of the system as a whole is considered. This type of excitation arises as a result of the interactions between particles. Plasmons and phonons in solids are examples of collective excitations. Collective excitations obey Bose-Einstein statistics (see quantum statistics).

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《企鹅物理学词典(英文)》是一本供读者查阅物理学及相关学科专业术语的工具书，释义简洁、精确

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