

A

电子回旋加速器粒子稳定加速的模拟计算

@胡玉民\$清华大学工程物理系!北京100084 @刘华\$清华大学工程物理系!北京100084 @林幸笋\$清华大学工程物理系!北京100084 @王海鹏\$BNL,Physics Department!Bldg901A,USA

收稿日期 1999-8-2 修回日期 网络版发布日期:

摘要 用MAFIA程序计算了电子回旋加速器加速腔上加速孔、阴极孔、辅助孔(第II加速型)对加速场分布的影响。计算结果表明:进行粒子动力学模拟计算时,忽略这种影响是合理的。另用对电子加速到最终能量跟踪计算的方法,同时以能散度为依据,计算电子稳定加速的参数范围,并给出S波段电子回旋加速器工作参数的计算结果。计算用C语言编制的程序在微机上进行。

关键词 [电子回旋加速器](#) [加速型](#) [加速腔](#) [跟踪模拟计算](#)

分类号 [TL54+2](#)

Simulation of the Stable Acceleration of the Electrons in Microtron

HU Yu min 1, LIU Hua 1, LIN Xing sun 1, WANG Hai peng 2 (1 Department of Engineering Physics, Tsinghua University, Beijing 100084, China; 2 BNL, Physics Department, Bldg 901A, USA)

Abstract The influence on the accelerating electromagnetic field caused by the accelerating apertures, cathode hole and supplementary aperture(the second acceleration type), is studied by using the MAFIA program. The calculation indicates that ignoring this influence is reasonable for simulating the electron motion. A C language program is compiled for the simulation, which follows the electron track of the whole motion and take the energy spread as criterion of the stable acceleration, so as to determine the range of parameters of microtron. A group of detailed result of S band microtron is also given.

Key words [microtron](#) [accelerating type](#) [accelerating cavity](#) [computer simulation](#)

DOI

通讯作者

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [\[PDF全文\]\(301KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中包含“电子回旋加速器”的相关文章](#)
- ▶ [本文作者相关文章](#)