

加速器

HOM study and parameter calculation of the TESLA cavity model

曾日华¹,SCHUH Marcel²,GERIGK Frank²,WEGNER Rolf²,潘卫民¹,王光伟¹,刘熔¹

¹ Institute of High Energy Physics, CAS, Beijing 100049, China

² CERN, CH--1211~Geneva 23, Switzerland

收稿日期 2009-2-1 修回日期 2009-2-16 网络版发布日期 2009-12-9 接受日期 2009-12-9

摘要

The Superconducting Proton Linac (SPL) is the project for a superconducting, high current H-accelerator at CERN. To find dangerous higher order modes (HOMs) in the SPL superconducting cavities, simulation and analysis for the cavity model using simulation tools are necessary. The existing TESLA 9-cell cavity geometry data have been used for the initial construction of the models in HFSS. Monopole, dipole and quadrupole modes have been obtained by applying different symmetry boundaries on various cavity models. In calculation, scripting language in HFSS was used to create scripts to automatically calculate the parameters of modes in these cavity models (these scripts are also available in other cavities with different cell numbers and geometric structures). The results calculated automatically are then compared with the values given in the TESLA paper. The optimized cavity model with the minimum error will be taken as the base for further simulation of the SPL cavities.

关键词

[TESLA 9-cell cavity, superconducting proton linac, higher order modes, HFSS scripts](#)

分类号

DOI:

通讯作者:

曾日华 zengrh@ihep.ac.cn

作者个人主页:

曾日华¹;SCHUH Marcel²;GERIGK Frank²;WEGNER Rolf²;潘卫民¹;王光伟¹;刘熔¹

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF](#)(898KB)
- ▶ [\[HTML全文\]](#)(0KB)
- ▶ [参考文献\[PDF\]](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [引用本文](#)
- ▶ [Email Alert](#)

相关信息

- ▶ [本刊中 包含 “](#)

[TESLA 9-cell cavity, superconducting proton linac, higher order modes, HFSS scripts](#)

” 的 相关文章

- ▶ [本文作者相关文章](#)

- [曾日华](#)
- [SCHUH Marcel](#)
- [GERIGK Frank](#)
- [WEGNER Rolf](#)
- [潘卫民](#)
- [王光伟](#)
- [刘熔](#)