15th Workshop on Breakdown Science and High Gradient Technology (HG2023)



Contribution ID: 5

Type: Poster

Study of S-band High Gradient Accelerating Structure for the Acceleration of Protons from 30MeV to 230MeV

Tuesday, 17 October 2023 17:00 (2 hours)

S-band high-gradient accelerating structures were proposed to accelerate protons from 30MeV to 230MeV for a compact therapy Linac in IMP. A backward traveling wave structure and a high gradient standing wave structure were developed, and the differences between the two types of structures were analyzed. In this paper, A new-shaped accelerating structure with reduced coupling holes and thermal stress was developed, along with a novel cooling channel design, which allow the cooling water flow in the middle of the disk, thus make it possible for higher duty cycle and longer RF pulse operation. It provides a wider application scenario for the high gradient accelerating structure. The research of high gradient accelerating structure is consistent with the trend of linear accelerator technology (compact, flexible and economical). Design and optimization of the linac and the status of the prototype cavity will be discussed in this paper.

Primary author: QIN, WEI (Institute of Modern Physics, Chinese Academy of Sciences)Presenter: QIN, WEI (Institute of Modern Physics, Chinese Academy of Sciences)Session Classification: Poster Session