

Superconducting $\beta=0.40$ half-wave cavity design for CiADS

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A 325 MHz, optimal beta = 0.40 niobium half-wave resonator (HWR) called HWR040 for the superconducting driver linac of the China initiative Accelerator-Driven subcritical System (CiADS) has been designed and analysed at the Institute of Modern Physics, Chinese Academy of Sciences (IMP, CAS). The linac requires 60 HWR040s to accelerate protons from 45 MeV to 175 MeV. This paper mainly presents the multi-physics studies of the HWR040, include electromagnetic optimization, mechanical structure design and heat transfer simulation of the cavity, to predict the behaviour of the cavity under practical operating process.

Footnotes

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