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Superconducting β=0.19 half-wave cavity for CiADS

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A 162.5 MHz, optimal beta = 0.19 pure niobium half-wave resonator (HWR) called HWR019 for the superconducting driver linac of the China initiative Accelerator-Driven subcritical System (CiADS) has been designed and analyzed at the Institute of Modern Physics, Chinese Academy of Sciences (IMP, CAS). The linac requires 24 HWR019s to accelerate protons from 6.8 MeV to 45 MeV. This paper mainly presents a design scheme of HWR019. Meanwhile, electromagnetic field optimization, and mechanical structure design are carried out, to predict the behavior of the cavity under practical operating process. At present, this superconducting cavity has been fabricated a prototype and awaits further testing.

Footnotes

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