



Contribution ID: 57 Contribution code: TUCDB02

Type: **Contributed Oral Presentation**

Alternative design for the IFMIF-DONES superconducting half-wave resonators

Tuesday, October 21, 2025 4:50 PM (20 minutes)

The IFMIF-DONES facility will irradiate and characterize materials to be used in fusion reactors using a neutron flux produced by the interaction of a deuteron beam with a liquid lithium target. A superconducting radiofrequency linear accelerator will bring the deuteron beam to the final energy of 40 MeV through a series of superconducting half-wave resonators operating at 175 MHz. A prototype cavity for the final acceleration stage (optimized for $\beta = 0.18$) was designed, fabricated and tested at CEA. Taking this prototype as a starting point, an alternative design of the internal geometry of the cavity was developed at LNL to optimize it from the point of view of production, while maintaining its performance as close as possible to what was observed at CEA. This contribution describes the results achieved in the simulation campaign that led to the definition of this alternative design, the evaluation of its electromagnetic properties and the study of multipacting effects.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

Author: D'ANDREA, Marco (Istituto Nazionale di Fisica Nucleare)

Co-authors: FACCO, Alberto (Istituto Nazionale di Fisica Nucleare); PISENT, Andrea (Istituto Nazionale di Fisica Nucleare); GRESPAN, Francesco (Istituto Nazionale di Fisica Nucleare); BELLAN, Luca (Istituto Nazionale di Fisica Nucleare)

Presenter: D'ANDREA, Marco (Istituto Nazionale di Fisica Nucleare)

Session Classification: TUCDB WGC contributed oral

Track Classification: WGC:Accelerator Systems