



Contribution ID: 1954 Contribution code: WEPS136

Type: **Poster Presentation**

## Design and simulation of high-power RF window for NSTRI e-Linac Project

*Wednesday 4 June 2025 16:00 (2 hours)*

The RF window has to withstand several megawatts of RF power without experiencing any physical deformity to maintain the pressure difference between vacuum and isolate gas sides. It must also have suitable and acceptable RF performance with minimum reflection and insertion loss. The design of an RF window depends on the window materials' dielectric characteristics, such as dielectric constant, permeability, and permittivity. The dielectric permittivity and permeability of window material affect the transmission of RF power.

This paper presents the design and simulation of an RF window that works at a frequency of 2.998 MHz and performs thermal analyses to determine its structural stability. This RF window must withstand an average power of 3 kW. This window will be used for NSTRI dual energy e-Linac Project.

### Footnotes

### Paper preparation format

Word

### Region represented

Asia

### Funding Agency

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**Session Classification:** Wednesday Poster Session

**Track Classification:** MC7: Accelerator Technology and Sustainability: MC7.T06 Normal Conducting RF