



Contribution ID: 2733 Contribution code: MOPM140

Type: **Poster Presentation**

## **X-band electron linear accelerator design for intraoperative radiotherapy**

*Monday, 8 May 2023 16:30 (2 hours)*

In intraoperative radiation therapy (IORT), accelerators typically consist of two or more tubes to achieve adjustable electron energy. To simplify the accelerator structure and meet the demand for convenient adjustment of electron energy, we propose an X-band electron linear accelerator for IORT, composed of 102 cavities. This accelerator can adjust the output electron energy over a large range solely by varying the input power, providing electrons with energy exceeding 13MeV at maximum and approximately 5.5MeV at minimum, which satisfies the requirements of electron IORT. We also measured the field distribution and S-parameters at low power, and the energy spectrum distribution also was measured at different input powers. This accelerator design provides a feasible and simple solution for IORT-specific accelerators.

### **Funding Agency**

### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

**Primary authors:** GU, Weihang (Tsinghua University in Beijing); CHEN, Huaibi (Tsinghua University); SHI, Jiaru (Tsinghua University in Beijing); ZHA, Hao (Tsinghua University)

**Presenter:** GU, Weihang (Tsinghua University in Beijing)

**Session Classification:** Monday Poster Session

**Track Classification:** MC2: Photon Sources and Electron Accelerators: MC2.A08: Linear Accelerators