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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 adjusta-ble electron energy. To simplify the accelerator structure and meet the demand for convenient adjustment of elec-tron energy, we propose an X-band electron linear accel-erator for IORT, composed of 102 cavities. This accelera-tor can adjust the output electron energy over a large range solely by varying the input power, providing elec-trons 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 ener-gy spectrum distribution also was measured at different input powers. This accelerator design provides a feasible and simple solution for IORT-specific accelerators.

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Footnotes

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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)

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