



Contribution ID: 1131 Contribution code: WEPA115

Type: **Poster Presentation**

RF design of the pulse compression system for the klystron-based CLIC main linac

Wednesday, 10 May 2023 16:30 (2 hours)

A pulse compression system based on double-height waveguides was designed for the Klystron-based CLIC main linac. The optimized power gain of the system is 3.81 with the particular pulse shape required for the CLIC-K accelerating structure. This pulse compression system consists of a main Barrel Open Cavity (BOC)-type pulse compressor and 4 novel correction cavities. The BOC pulse compressor has the Q_0 of $2.36e5$ with working mode $TM_{1,1,32}$ and the β of 6.6. A novel coupling waveguide network which can ease the machining procedure was designed for the BOC pulse compressor. For the correction cavities, a new method based on a single cylinder cavity and a 3-dB hybrid was studied. Each of the correction cavities has the Q_0 of $5e4$ and the β of about 1.3.

Funding Agency

Footnotes

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Yes

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Session Classification: Wednesday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T06: Room Temperature RF