



Contribution ID: 1381 Contribution code: TUPM060

Type: **Poster Presentation**

Vacuum tube operation analysis under a positive grid biasing in J-PARC RCS

Tuesday, 9 May 2023 16:30 (2 hours)

Tetrode vacuum tubes are used under the positive grid region to accelerate a high intensity beam in the RCS. A tube amplifier is operated in push-pull mode and two tubes are installed in the amplifier. Although each control grid should be driven in counterphase for the push-pull operation, the waveform becomes asymmetric by the positive grid biasing. The vacuum tube operation analysis should include such an effect caused by the positive grid biasing. The analysis becomes complicated because the anode current and the control grid voltage waveforms interact each other under the heavy beam loading. The effects caused by the positive grid voltage are analyzed with the self-consistency. We will describe the analysis result under the positive grid biasing.

Funding Agency

Footnotes

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Yes

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Session Classification: Tuesday Poster Session

Track Classification: MC4: Hadron Accelerators: MC4.A17: High Intensity Accelerators