

A new RFQ for the carbon therapy injector at HIT Heidelberg

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The tumor therapy facility HIT, Heidelberg, Germany is in operation with light ion beams up to carbon since 2009. The 7 A MeV, 216.8 MHz synchrotron injector linac with a total length of 5 m is designed for the ion C^{4+} from an ECR ion source. The RFQ accelerates the beam from 8 A keV up to 400 A keV and is at present a bottleneck in beam transmission. After a careful analysis of the beam quality along the RFQ it was decided by HIT to order a new RFQ from Bevatech with higher beam acceptance and with tight mechanical tolerances. Other features are optimized entrance and exit gaps by including longitudinal field components, which are characteristic for 4-Rod-RFQs. A complete dipole field compensation along the mini-vane electrodes is another improvement. This RFQ is scheduled to replace the old one in 2026.

Footnotes

Funding Agency

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