

HIGH FREQUENCY COMPACT LINEAR PROTON ACCELERATOR

As part of the Medical Applications Programme at CERN, a novel, very compact radio-frequency quadrupole (RFQ) linear accelerator has been designed. Operating at a frequency of 750 MHz and having adapted beam optics, this RFQ can reach an energy of 5 MeV over a distance of 2 m. It is a suitable alternative to cyclotrons for use in medical applications, for example as an injector for higher-energy linacs or as a stand-alone accelerator for radioisotope production.

AREA OF EXPERTISE

- Accelerators

IP STATUS

- Patented; available for licensing

TECHNOLOGY READINESS LEVEL

- First prototype is being manufactured. Beam tests scheduled for 2016.

CONTACT PERSON

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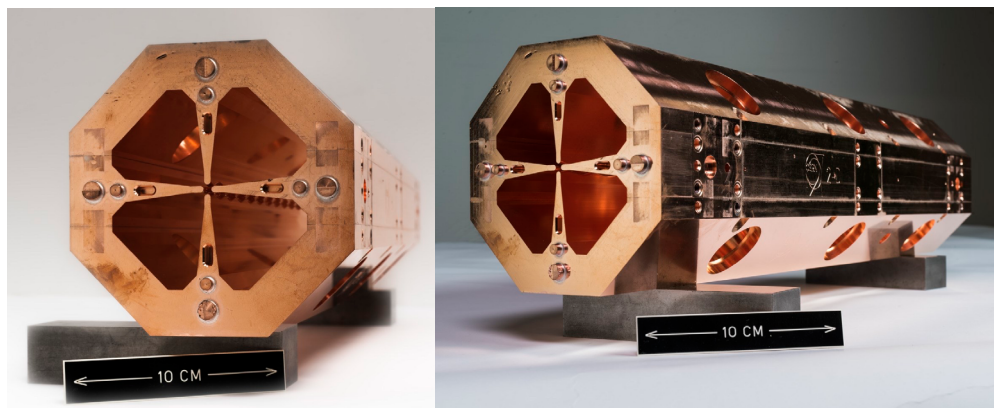
Find out more at:
kt.cern

FEATURES

- Modular, permitting cascading of several RFQ modules and integration into larger accelerating structure.
- Very compact.
- No shielding required.

APPLICATIONS

- Linac-based proton therapy facilities.
- PET isotope production.
- Technetium production for SPECT tomography.
- Brachytherapy.
- Material analysis.



Artwork Credit: Xavier Cortada (with the participation of physicist Pete Markowitz), "In search of the Higgs boson: H - > tau tau", digital art, 2013.