

## Status of the iBNCT accelerator

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Present status and future prospects of the iBNCT accelerator will be discussed. Several accelerator-based neutron sources for Boron Neutron Capture Therapy (BNCT) have been developed in the world. The iBNCT (Ibaraki, BNCT) is a linac-based BNCT facility which is operated by University of Tsukuba and KEK in close collaboration with the local government, Ibaraki prefecture. The accelerator is based on the design and experiences of the J-PARC linac, and consists of an ion source, 3-MeV RFQ, 8-MeV DTL and a Beryllium target with modulators.

The project aims to realize a compact and low activation BNCT accelerator of several mA proton beam with high duty factor to obtain the thermal neutron flux required for BNCT, but with high stability as a medical accelerator.

Originally the cavities were designed with the minimum amount of cooling water, and their resonance frequencies were maintained by dynamical control of the water temperature according to the RF power input. However, after the interlock due to RFQ discharge, the resonance frequency was shifted frequently. By improving and enhancing the cooling water and vacuum, stable operation at an average current of 2 mA has been achieved. We are performing the pre-clinical testing in FY2022, and prepare to start clinical trials in FY2023. This reports the present status of the iBNCT accelerator and its future prospects.

### Footnotes

### Funding Agency

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