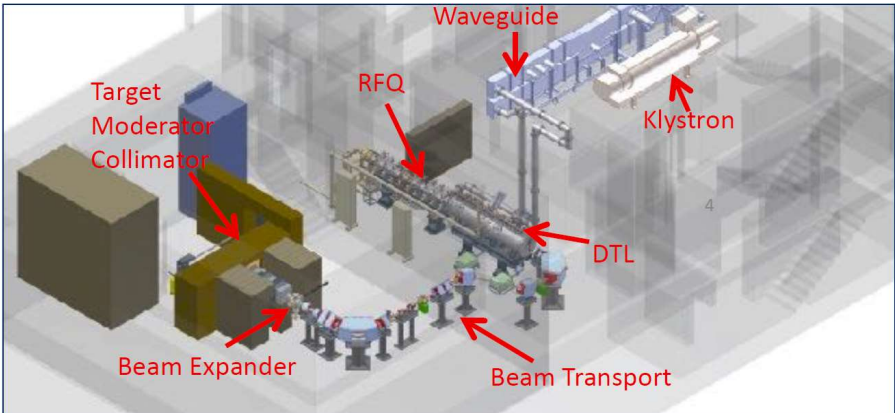
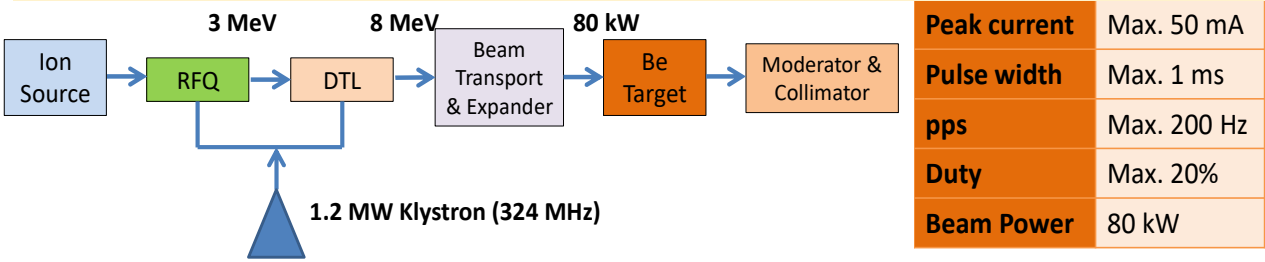


Overview of LLRF System for iBNCT Accelerator

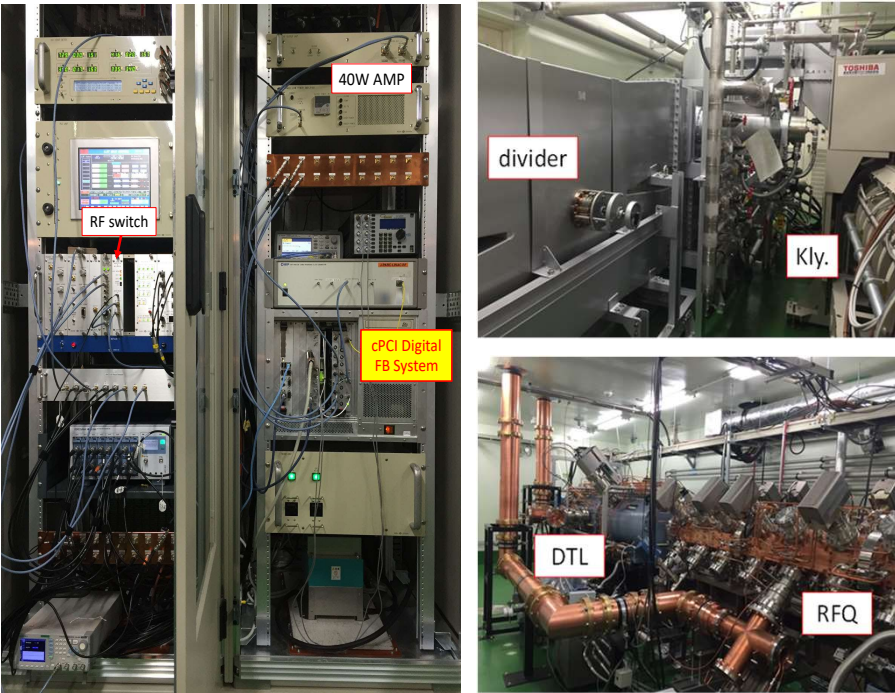
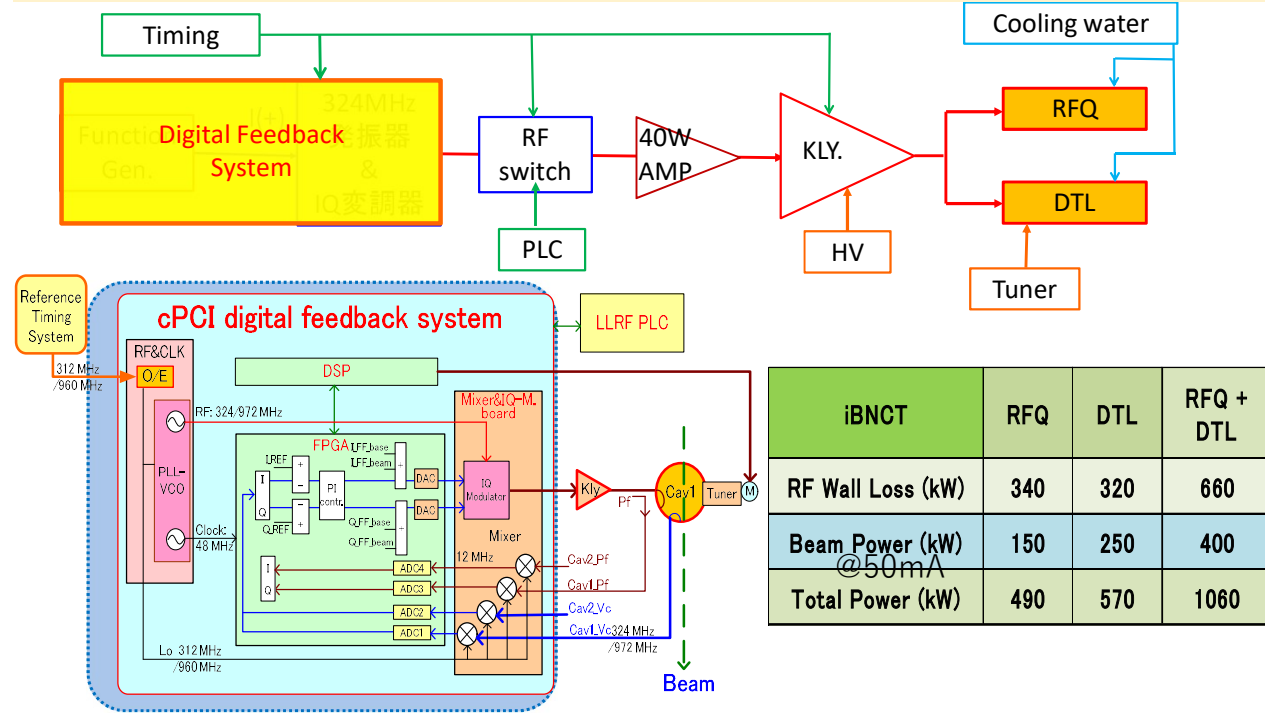
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Abstract: At the Ibaraki Neutron Medical Research Center, accelerator-based neutron source for iBNCT (Ibaraki - Boron Neutron Capture Therapy) is being developed using an 8-MeV proton linac and a beryllium-based neutron production target. The proton linac consists of an RFQ and a DTL, which is almost the same as the front part of J-PARC. However, here only one high-power klystron is used as the RF source to drive the two cavities with quite different Q-values and responses. From June 2016, a cPCI based digital feedback system was applied to the iBNCT accelerator. It serves not only as a controller for the feedback of acceleration fields, but also as a smart operator for the auto-tuning of the two cavities in the meantime, especially during the RF start up to the full power.

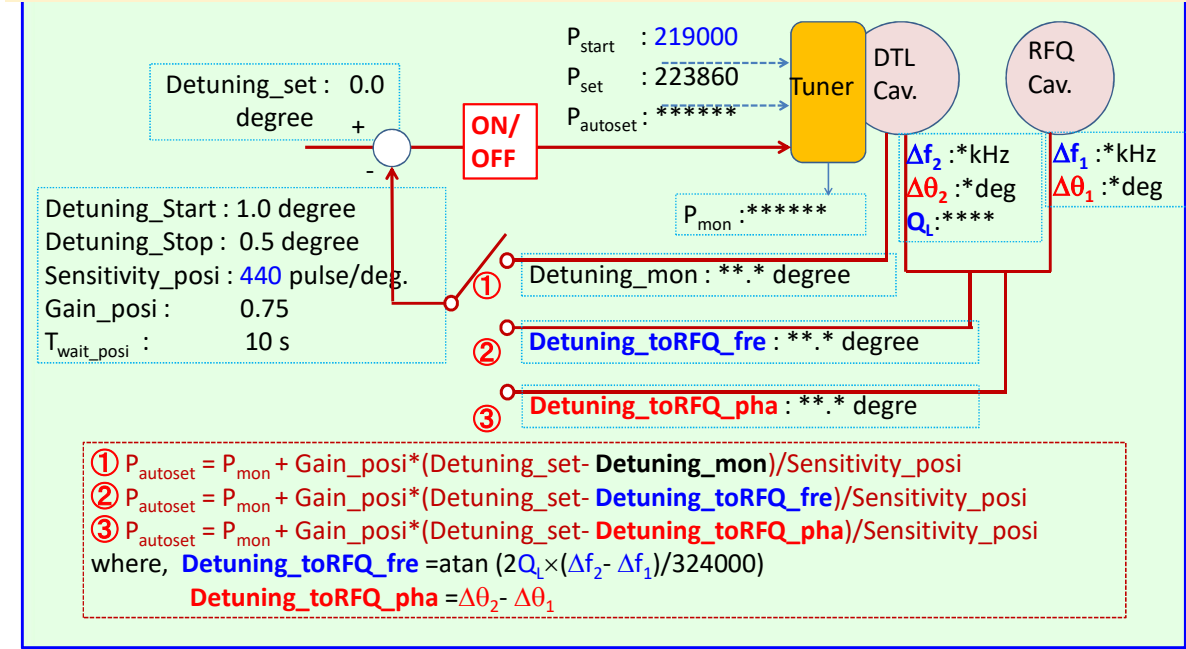
iBNCT Accelerator



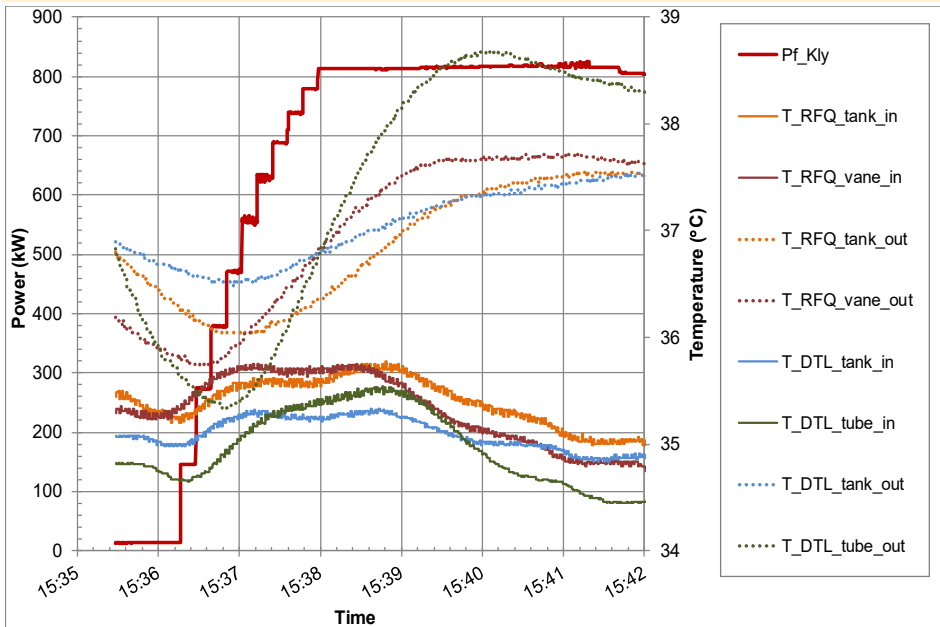
LLRF System



DTL Tuner control



RF start-up (75 Hz, 1 ms)



Stabilities (with beam: 24 mA, 850 μs)

