



LIBERA



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Real-time observation of non-interceptive Beam Current and Beam Position Measurements for FLASH and Conventional Proton Therapy at PSI

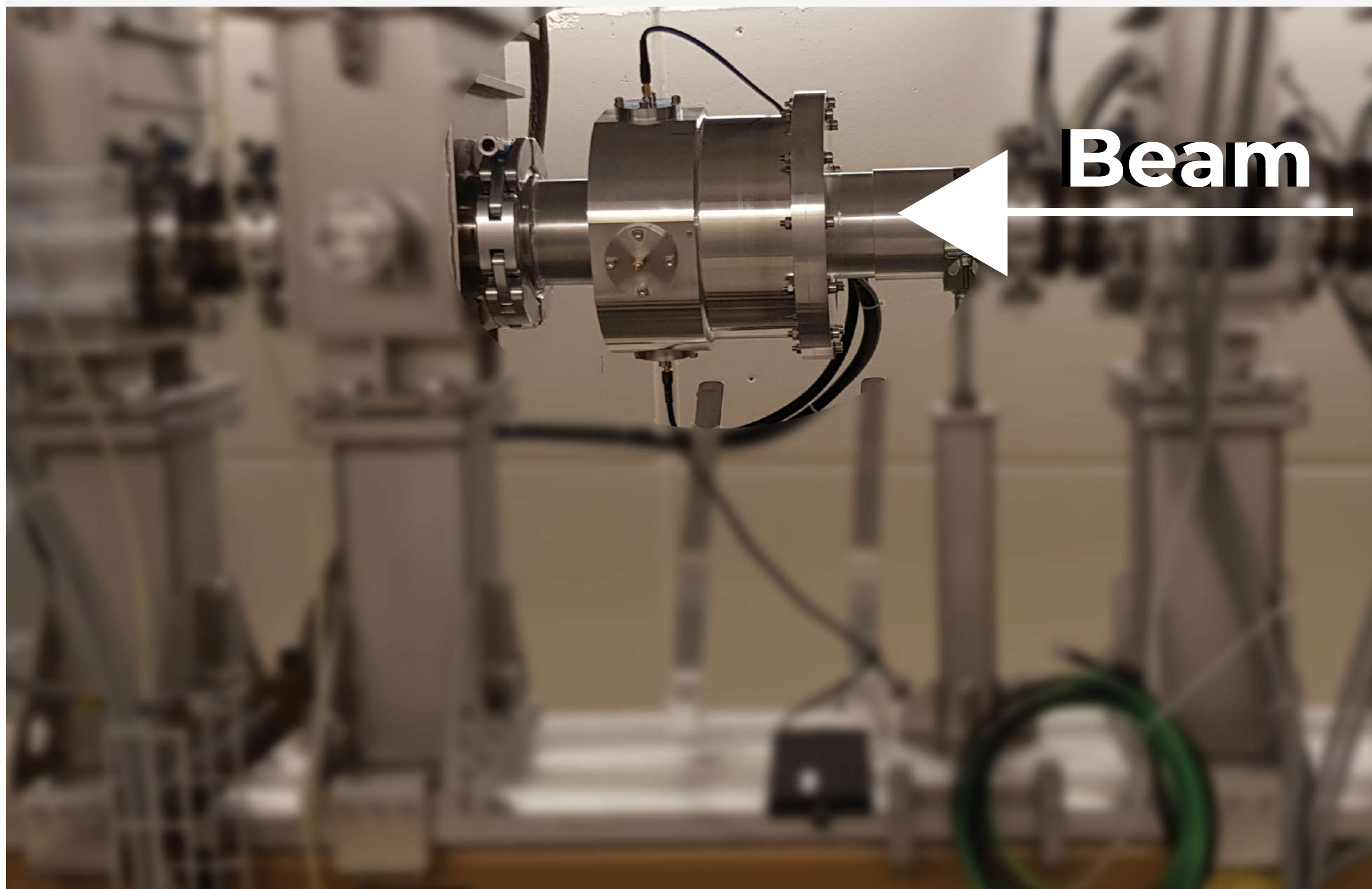
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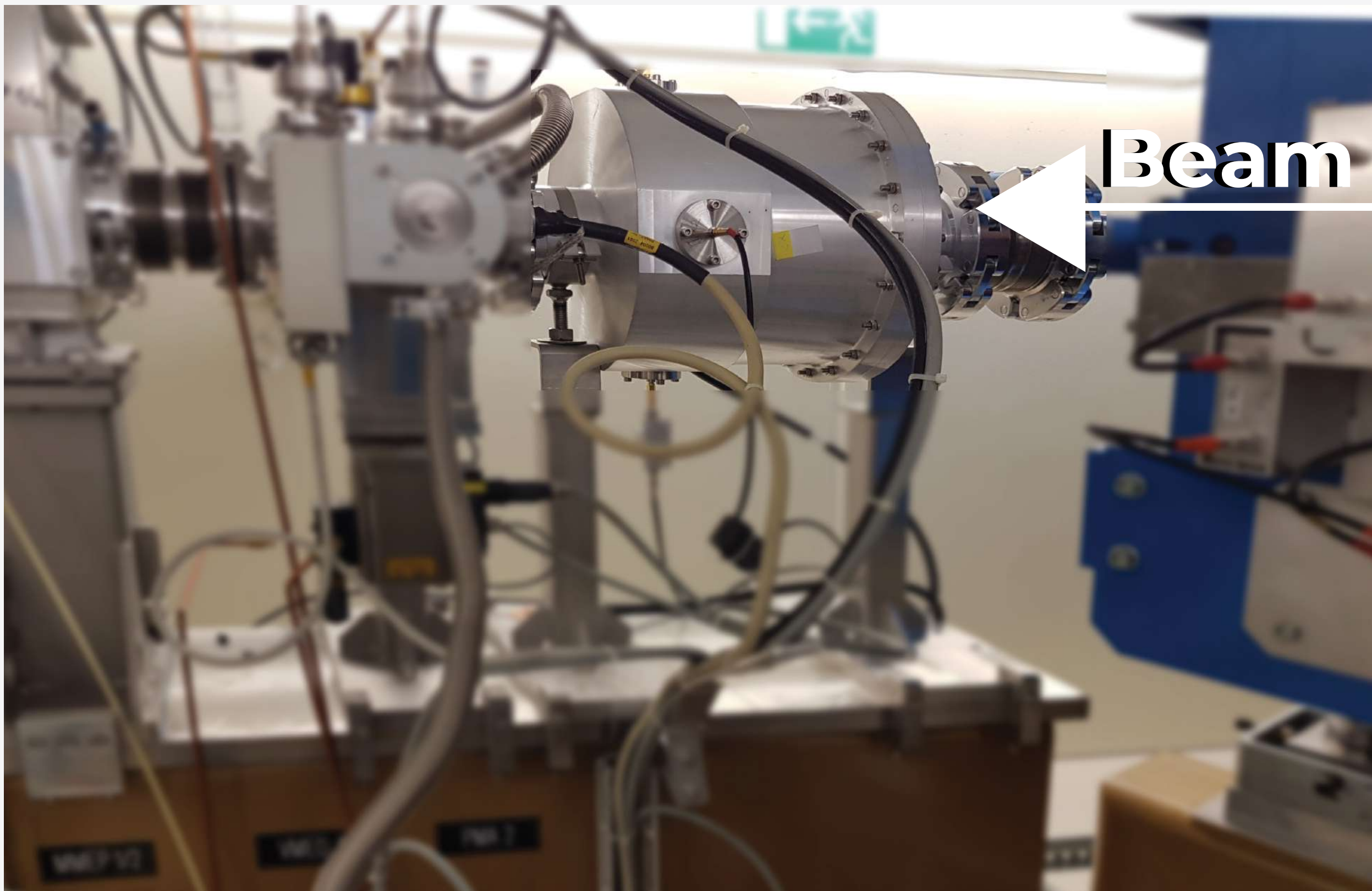
Libera Digit 500

Beam Current / Beam Position Observation @ 1 kHz refresh rate enabling 1 ms resolution

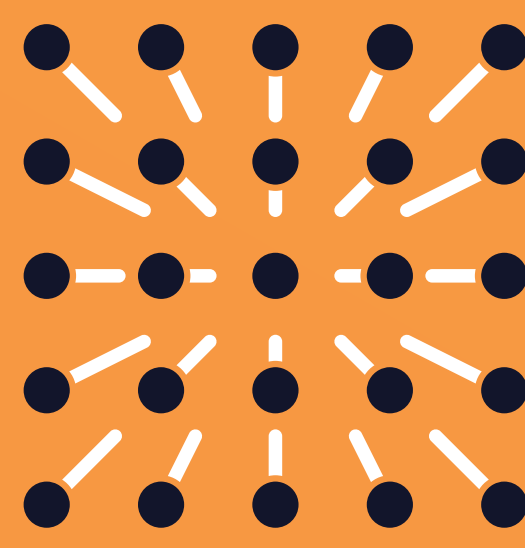
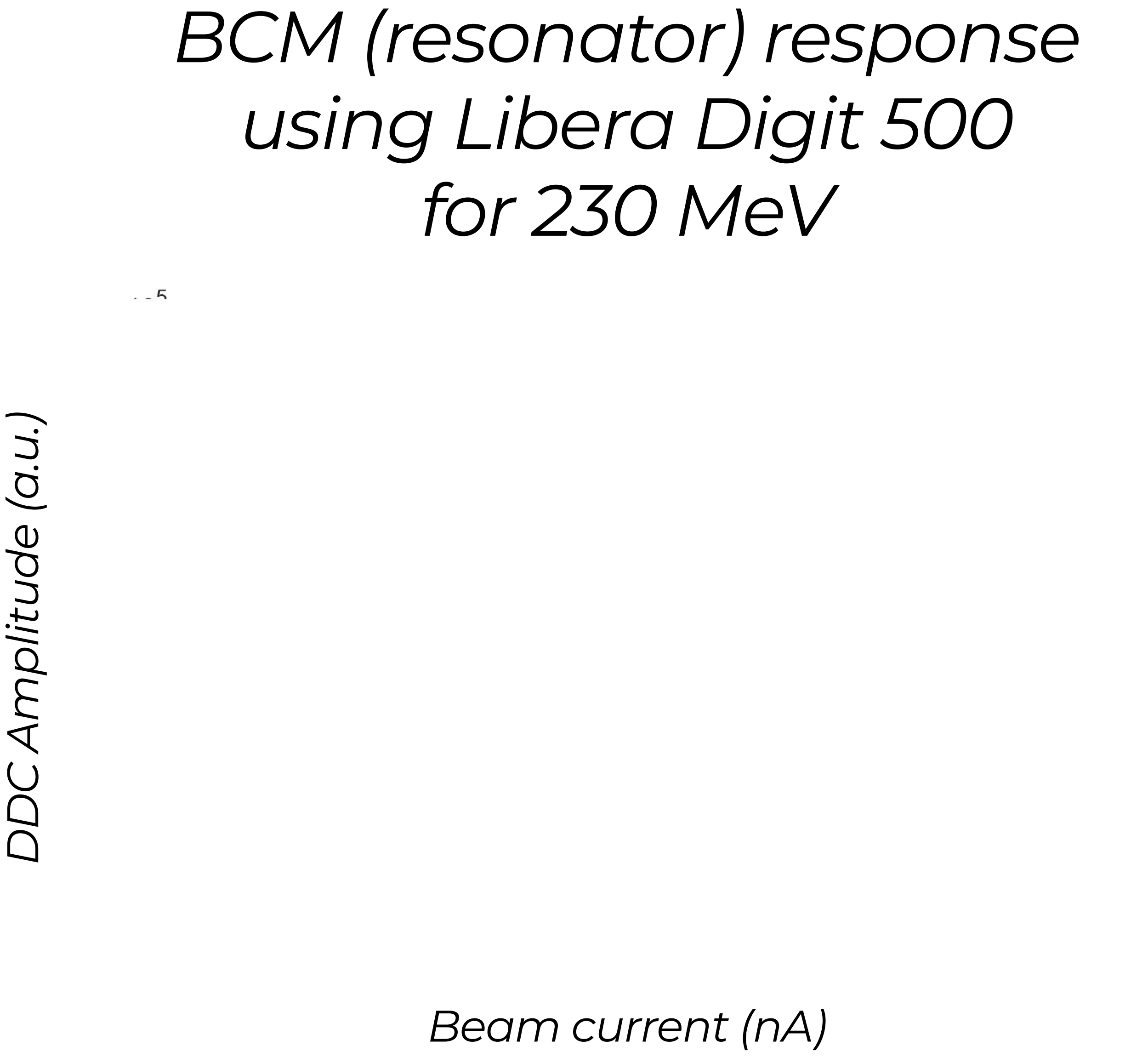
Using PSI’s compact cavity monitors (reentrant EM resonators)



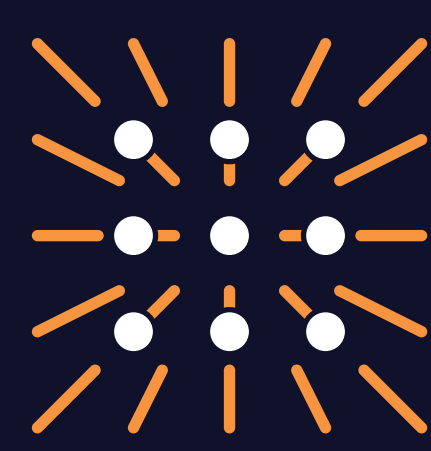
BCM - Beam Current Monitor
($L \sim 20\text{ cm}$, $\phi \sim 20\text{ cm}$)



BPM - Beam Position Monitor
($L \sim 30\text{ cm}$, $\phi \sim 30\text{ cm}$)



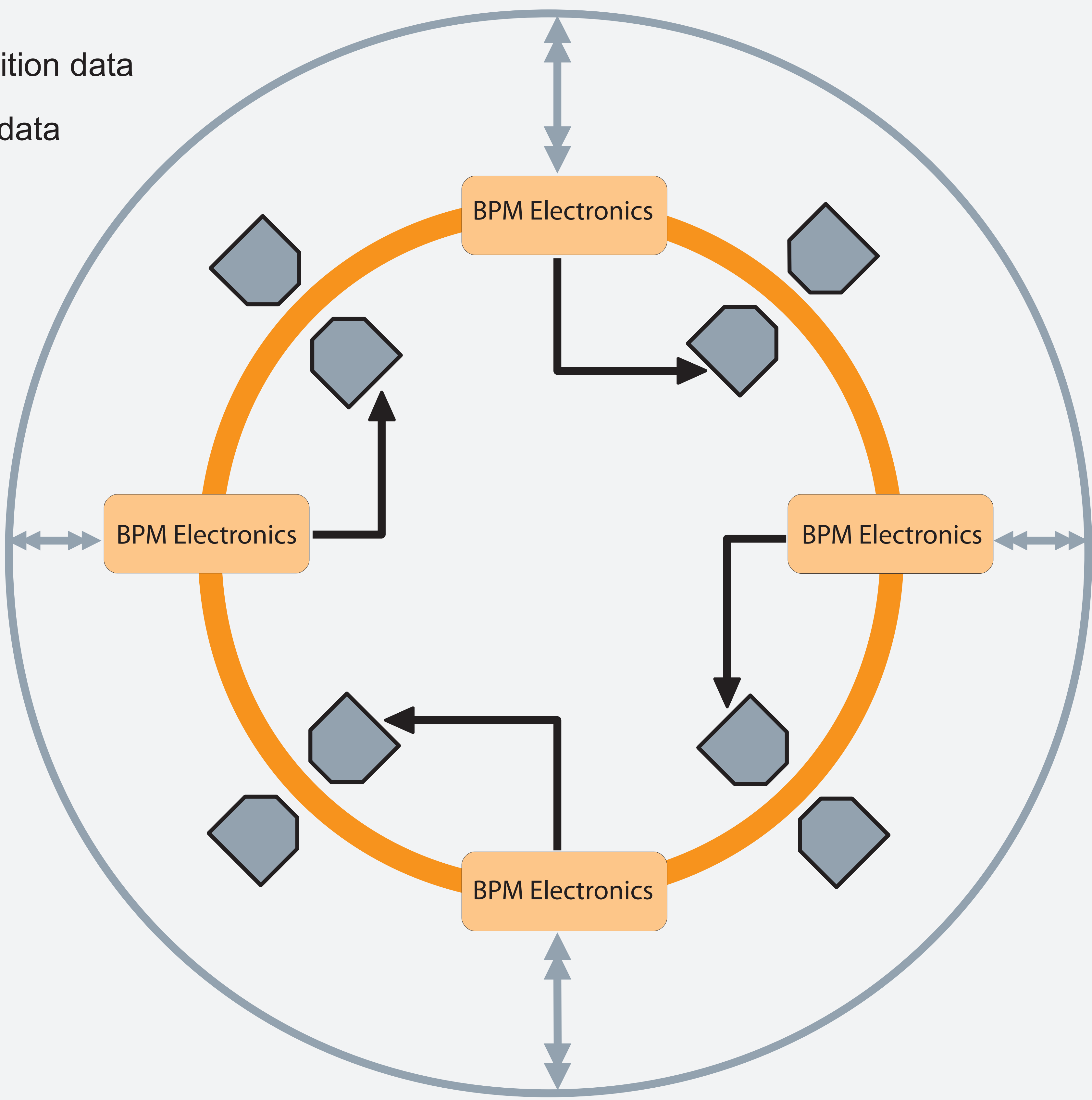
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Fast Orbit Stabilization for Proton and Heavy Ion Synchrotrons

Global orbit position data
Magnet control data



BPM SYSTEM

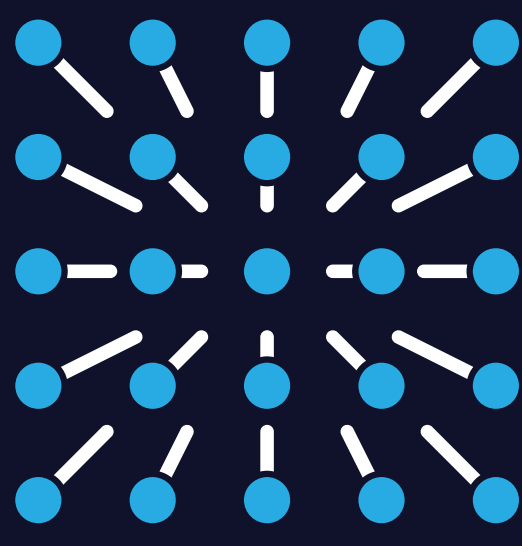
Variable gain low-noise
preamplifier



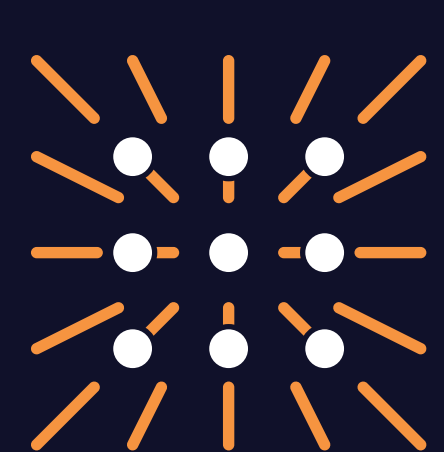
Libera Hadron with orbit
feedback capabilities



Data Exchange and
magnet control modules

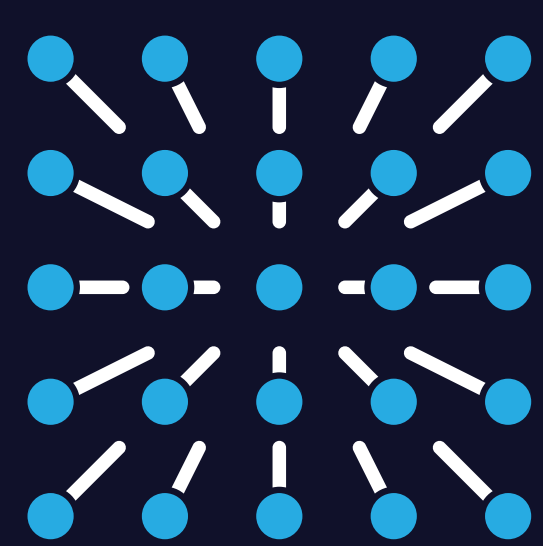
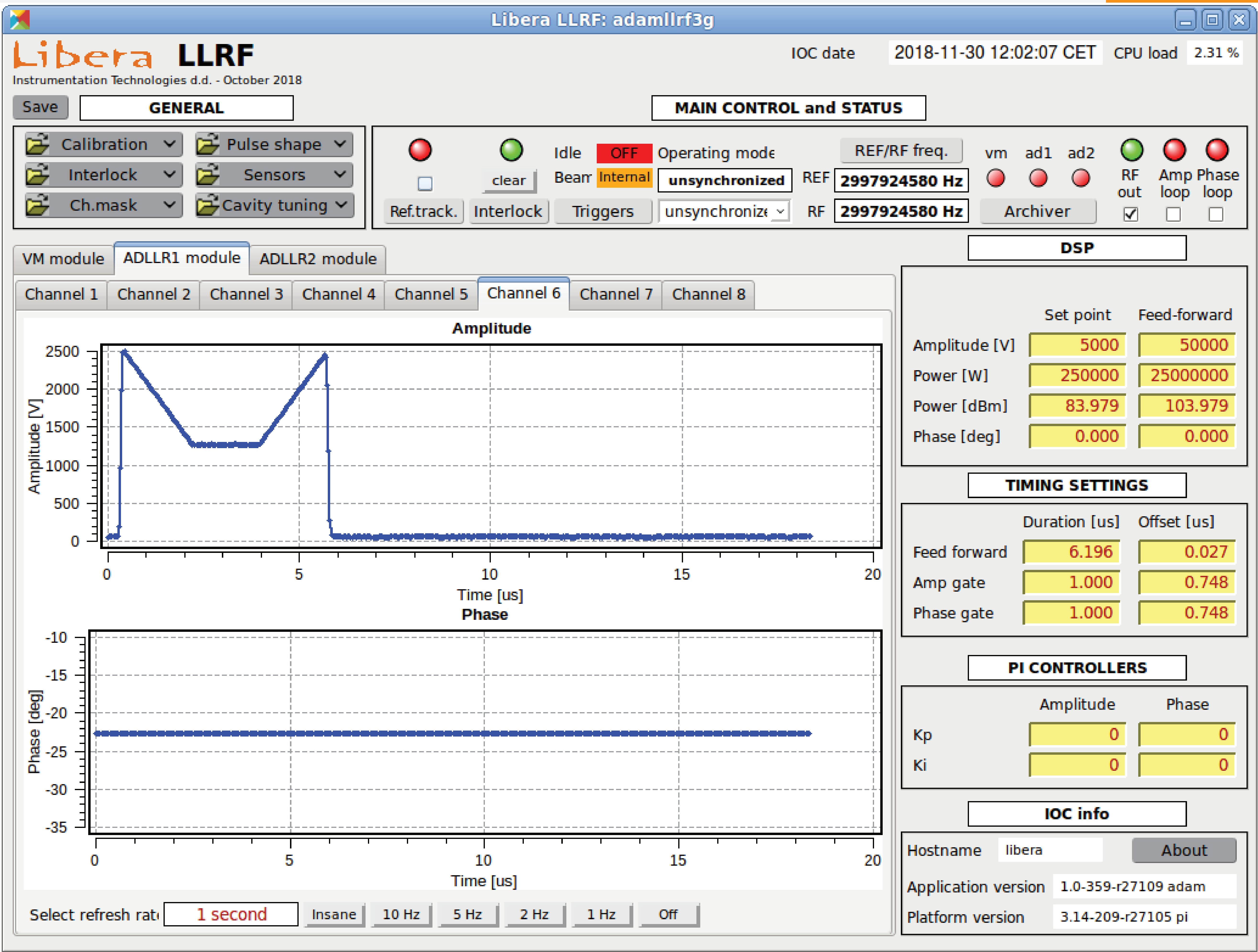
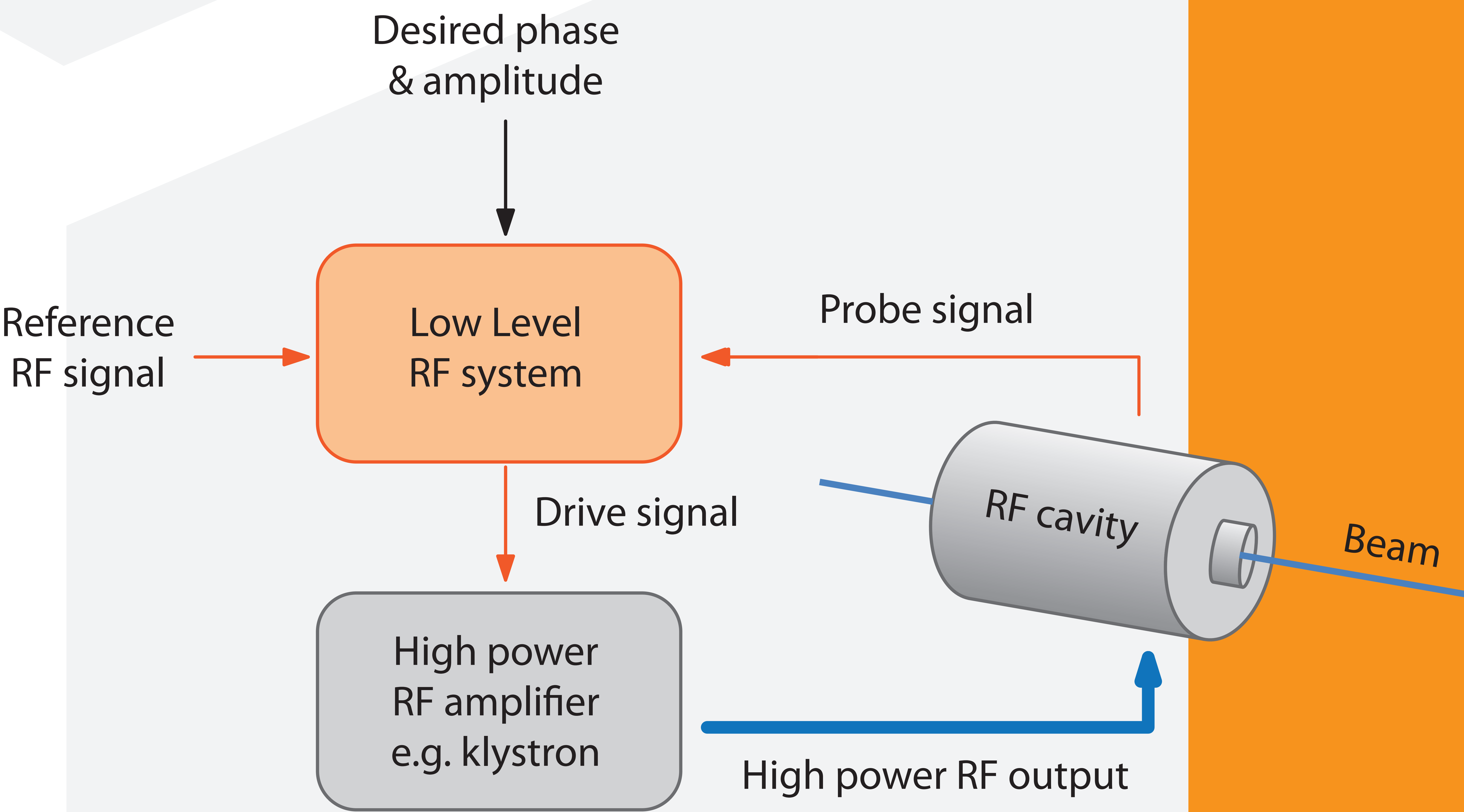


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Digital LLRF System for Medical Accelerators



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