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CEBAF 2023 linac plasma processing gradient and Qo results

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Firmware for the Low-level Radiofrequency (LLRF) systems used in the Jefferson Lab C100 and C75 cryomodules was upgraded to allow for a variable duty factor pulsed mode operation with triggered waveforms available through EPICS. A new type of gaseous helium flow meter that has been under development for the past 2 years was also opportunistically installed in cryogenic return U-tubes of 14 of the cryomodules that were cycled to room temperature during the Spring 2023 accelerator down. These flow meters were developed under an SBIR project* with Hyperboloid LLC. Stub tuners were also adjusted to improve the loaded-Q of the cavities for better klystron operation range. The combination of these activities allowed for re-commissioning of recently plasma processed cavities with pulsed and continuous wave (CW) Self-Excited Loop with Amplitude and Phase locked (SELAP) gradients measured via the LLRF system. Newly developed software also allowed us to measure Qos with the installed flow meters.

I have read and accept the Privacy Policy Statement

Yes

Footnotes

Funding Agency

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