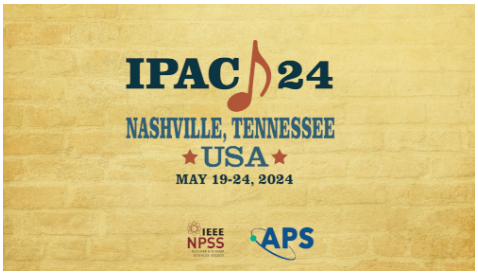

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Status of the new bunch length measurement system downstream the injector of the S-DALINAC

Wednesday, 22 May 2024 16:00 (2 hours)

Energy-recovery linacs provide high beam currents with lower RF power requirements compared to conventional machines while maintaining the high beam quality of a linac. The S-DALINAC is a thrice-recirculating accelerator operating at a frequency of 3 GHz that is capable of being operated as a multi-turn superconducting energy-recovery linac. Its efficiency is currently limited by the bunch length, which by now is measured using the RF zero-crossing method. In order to improve both accuracy and measurement time a new setup using a streak camera is developed. Optical transition radiation from electron bunches passing an aluminum-coated Kapton screen is used to produce light pulses that can be measured with the streak camera. An imaging system consisting of multiple mirrors is used to maintain a high temporal resolution for the measurement and to support in shielding the streak camera from harmful radiation. The device will be used at two different measurement setups downstream of the injector. The design and current status of the measurement setup will be presented.

Footnotes

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