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OTR beam profile monitor for online measurements

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Optical Transition Radiation (OTR) is a widely used diagnostic technique in accelerator particle beam applications, providing high-resolution beam profile measurements. This work focuses on the development and implementation of OTR-based beam profile monitors for the transfer lines at the Advanced Light Source (ALS) and its upgrade (ALS-U), with the goal of enabling real-time, online beam characterization. We present key design considerations for the OTR screens, including material selection, optical properties, and mechanical integration. Furthermore, we discuss experimental results from OTR monitor tests conducted at ALS, evaluating their performance in terms of spatial resolution, signal-to-noise ratio, and capability for online measurements. These advancements are expected to enhance beam diagnostics and facilitate improved beam quality control at ALS/ALS-U.

Footnotes

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