Contribution ID: **923** Type: **Parallel session talk**

Compact online scintillation spectrometer and dosemeter for LWFA sources

Friday 19 July 2024 08:45 (15 minutes)

Ultra-short and intense electron beams are now routinely generated by the Laser Wakefield acceleration (LWFA) mechanism. However, achieved beams remain unstable compared to conventional beams, even at state-of-the-art laser facilities, because of the inherent nature of the laser systems and the gaseous target involved. An online, accurate and non-perturbative beam diagnostic system is required for irradiation experiments. LWFA beams are challenging to characterize because of their high intensities, high divergence, short time structure and sensitivity to lasers. We present a scintillation detector in a differential stack configuration that can perform shot-by-shot measurements of e/γ radiation from LWFA sources. Using an unfolding algorithm relying on Monte Carlo simulations, the detector provides direct feedback on the beam quality including spectral information. Proof-of-concept measurements carried out at ELI Beamlines are presented at laser repetition rates reaching 1 kHz.

Alternate track

I read the instructions above

Yes

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