Contribution ID: **458** Contribution code: **MOP031** Type: **Poster Presentation**

Development of diamond-based halo monitor diagnostics for an electron accelerator

Monday 11 August 2025 16:00 (2 hours)

High-resolution diagnostic instruments for measuring particle beam profile and charge are essential for characterizing the improved performance of charged particle accelerators. Beam diagnostics based on synthetic single crystal diamond (SCD) exhibit superior radiation-hardness, chemical stability, fast saturated drift speed, and unparalleled thermal conductivity. At Los Alamos National Laboratory (LANL), the SCD sensor and the high-speed signal acquisition system have been developed for measuring intensity of individual bunches. At the Argonne Wakefield Accelerator, a 63 MeV electron beam with diameter of 5 mm and charge below 10 pC used to measure the beam halo at a radial distance of 12 mm from the beam center. This presentation will report on the detailed SCD design and electronics, halo monitoring at various charges, bunches, and distances, and plans for future testing at LANL.

Please consider my poster for contributed oral presentation

No

Would you like to submit this poster in student poster session on Sunday (August 10th)

No

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

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