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Radiation Safety Challenges and Detector Solutions for Plasma Accelerators

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Plasma accelerators produce both electron and photon beams with unique characteristics compared to traditional beam sources. As advancements in repetition rate and average power continue, radiation shielding and monitoring become increasingly critical. This poster highlights the distinctive radiation features of plasma accelerators and presents detector developments at Deutsches Elektronen-Synchrotron (DESY) specifically designed for monitoring these radiation fields. By comparing our findings with those from conventional accelerators and free-electron lasers, we provide insights into the evolving needs for radiation safety and dose monitoring. This comparison also offers an outlook on the techniques and advancements required to enable the safe adoption of plasma accelerators for practical applications.

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