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Development of stable plasma cells with high discharge rates at DESY's ADVANCE Lab

A critical component in generating and manipulating high-energy beams in plasma-wakefield accelerators is a reliable, well-characterized, and optimized plasma source with high discharge rates and stability. To meet these requirements, the ATHENA Discharge Development and Characterization Experiment (ADVANCE) laboratory has been established at DESY. The lab's mission is to develop advanced plasma cells for use in particle acceleration, as well as for other potential applications in research and industry. This contribution reports on the latest developments and activities at the ADVANCE lab, including the implementation of high-repetition-rate discharges, and the introduction of a new 500-mm long cell utilizing a combined glow- and arc-discharge setup and virtual-electrode concept.

Speed talk:

I am unwilling/unable to present a speed talk

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