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Investigation of plasma stability of the prototype plasma lens for positron matching

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The quest for novel technologies in the ever-evolving landscape of scientific exploration has led to the investigation of plasma lensing as a potential solution for optical matching devices for all kinds of positron sources. This research becomes increasingly significant as the need for higher data output demands innovative concepts to increase positron yield and therefore luminosity. Instabilities were observed during the first test trials. This poster presents the results of high-temporal resolution imaging to analyse the discharge instabilities. Furthermore, the results show not expected but interesting insights and challenges. Overcoming these challenges is pivotal for a future application of plasma lenses as an integral part of high-performance positron sources.

Footnotes

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