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Setup and investigation of a plasma window with optimized apertures for intense particle beam transmission to high pressure targets

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A plasma window (PW) provides a membrane free particle beam transmission while separating low pressure areas such as accelerator vacuums from high pressurized environments. It offers advantages over conventional low pressure interfaces such as higher operation times and shorter length scales. At IAP Frankfurt, a PW was successfully developed and investigated in terms of its pressure separation performance, its electrical characteristics and plasma parameters. The talk will outline the current state and further design considerations for future applications on intense particle beams at FAIR.

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