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Study of transfer efficiency in a screw pinch plasma ALEXANDER PUTH, THILO ACKERMANN, MARCUS IBERLER, JOACHIM JACOBY, DOMINIC MANN, GE XU, IAP, Goethe-University Frankfurt am Main — A screw-pinch for UV generation and possible FAIR plasma stripper applications was designed based on a previous development. The intention was to increase the applicable voltage and as a result the electron density. Research was conducted into the transfer efficiency for plasma generation providing preliminary values up to 66 %. The device operates at a frequency of approximate 14 kHz and is characterised by a capacity of 34 μF, a thyratron switch with a maximum current rise time of 5 MA/μs as well as a variable set of up to 5 planar coils with diameters of 172 and 208 mm. A cylindrical volume of 4 l can thusly be ignited within the region of $5{\cdot}10^{-3}$ to 1 $mbar$ with an applied voltage of 6 to 13 kV, resulting in peak electron densities of $4{\cdot}10^{16}$ electrons per cm^3.

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