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Hollow anode plasma source for high-current electron beam generation. JOSEF GLEIZER, DMITRY YARMOLICH, VLAD VEKSELMAN, ALON GRINENKO, YAKOV KRASIK, PLASMA AND PULSED POWER LABORATORY TEAM — We report on results of a large cross-sectional area ($\sim$ 170 cm^2), high-current ($\sim$ 1000A), uniform electron beam generation using a hollow anode plasma source at pressure of ^{5} 8×10^{-5} Torr, in a diode supplied with an accelerating pulse of 300 kV and 300 ns duration. The hollow anode discharge was sustained for ~ 10 μs by seven BaTi based ferroelectric plasma sources. The resistive decoupling of each plasma source produces a uniform plasma density distribution at the hollow anode output grid at a discharge current $\leq$ 1000A. It was found that the hollow anode plasma is characterized by a density of $\sim 10^{12}$ cm^{-3}, an electron temperature of $\sim$ 8 eV and a group of fast electrons with energy of $\sim$ 50 eV. It was shown that an increase in the hollow anode output grid potential allows one to significantly reduce the plasma pre-filling of the accelerating gap.

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