

ABSTRACT**DEVICE FOR FORMING A QUASI-NEUTRAL BEAM OF OPPOSITELY
CHARGED PARTICLES**

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The invention relates to a device (100) for forming a quasi-neutral ion-electron beam, comprising: a chamber (20); a set of means (31, 30, 40, 58) for forming an ion-electron plasma in the chamber (20); a means (50) for extracting and accelerating charged particles from the plasma out of the chamber (20), said particles being capable of forming the beam and the extraction and acceleration means (50) comprising a set of at least two grids (51, 54) located at one end of the chamber; a radio-frequency alternating voltage source (52) adapted to generate a signal having a radio-frequency of between the plasma frequency of the ions and the plasma frequency of the electrons, the radio-frequency voltage source (52) being disposed in series with a capacitor (53) and being connected, at one of its outputs and by means of the capacitor (53), to at least one of the grids of the set of at least two grids (51, 54), at least one other grid of the set of at least two grids (51, 54) being either set to a reference potential or connected to the other output of the radio-frequency voltage source (52).

(Figure 4)