



Contribution ID: 4

Type: Poster

Analytical Study of the Conditions of an Electron Beam Steady Transport in a Plasma

Dynamics of an axial-symmetric electron beam moving in a rarefied plasma is investigated analytically. The model based on Kapchinsky-Vladimirsky approach is applied, which is valid up to the beam currents near Alfvén limit. In approximation of a quasi-neutral regime the nonlinear equation for the beam radius is solved, the results of its numerical integration are presented. The conditions of stationary and quasi-stationary beam transport in a plasma environment are found in dependence on the initial parameters such as beam transverse emittance, beam current and beam transverse size.

E-mail for contact person

barminova@bk.ru

Funding Information

Primary author: Dr BARMINOVA, Helen (NRNU MEPhI, RUDN University)

Co-author: KAK, Bushra (RUDN University)

Presenter: Dr BARMINOVA, Helen (NRNU MEPhI, RUDN University)

Session Classification: Poster Session 1

Track Classification: Beam extraction, transport, and diagnostics