



COLLECTIVE INTERACTION OF 200KJ-RELATIVISTIC ELECTRON BEAM WITH A
PLASMA AND ITS FAST HEATING AT THE GOL-3-II FACILITY

by

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Abstract

Short review of recent experimental results on investigation of the collisionless relaxation of an electron beam (1MeV, 30kA, 8mks) in a plasma of 10^{15} - 10^{16} cm^{-3} density and of 12m- length in magnetic field up to 5T is presented.

The efficiency of collective electron beam deceleration up to 40% is achieved in 10^{15} cm^{-3} plasma. The characteristic electron temperature of $\sim 2\text{keV}$ at plasma density $(1-2) \cdot 10^{15} \text{cm}^{-3}$ is obtained. At the two-stage heating of a dense ($\sim 10^{16} \text{cm}^{-3}$) plasma the electron temperature of 0.3-0.5keV and the ion temperature of 0.1-0.2keV are reached. Feasibility of experiments on "wall" and multimirror plasma confinement at the GOL-3-II facility are discussed.