

Abstract Submitted
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High-density relativistic electron beam propagation in gas¹
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TOM COWAN, UNR, UCSD TEAM, UNR TEAM — The ionization front induced
by a relativistic high-density electron beam in gas was studied in 1D approximation.
We extended the approach of [1] to the relativistic beam energies and calculated
the ionization front velocity for a wide range of beam energies and gas densities.
The asymptotic expressions for the ionization front velocity were found in the limits
of small and large gas density. The estimated amplitude of the front velocity is
in a good agreement with the experimental data [2] where it was shown that the
ionization front velocity is much smaller than the beam electron velocity. We also
present the results from the ionization front computer simulation using a 1D PIC
code with field ionization. [1] S. I. Krasheninnikov, B. K. Frolov, *Phys. Plasmas*
13 033101 (2006) [2] D. Batani, S. D. Baton, M. Manclossi, *et al*, *Phys. Rev. Lett.*
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