Vlasov simulations of electron beam injection in the solar corona

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We present 1D simulations of the injection of electron beams in a stratified atmosphere trough one of the boundaries, when the temperature of the electrons incoming through this boundary varies with time. The equations which are solved are the usual electrostatic Vlasov and Poisson equations for electrons and protons in an open domain; plane and spherical geometries are considered.

The electron plasma waves excited locally at a given point by the near ballistic propagation of the fastest injected electrons interact with the slower propagating electrons. The beam evolution and the related emission of plasma waves will be described in different range of parameters.