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On thermal equilibrium of relativistic electron beam

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To study the conditions of thermal equilibrium of relativistic electron beam (REB) is important for numerous fundamental and applied tasks of accelerator physics and space physics as well as physical electronics. In our report the analytical study of the dynamics of neutralized relativistic electron beam is presented. The beam parameters are found which correspond to equilibrium propagation of a beam characterized by arbitrary 4D-phase configuration in a long-pulse approximation. The results obtained allow to shape the equilibrium REB as well as to predict the behaviour of a beam in a wide range of initial beam parameters.

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