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The relevance of shock-generated hot electrons for the tail plasma

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It will be discussed that travelling shocks upstream of the solar wind termination shock as well as the termination shock itself downstream act as efficient accelerators especially for solar wind electrons. Using two particle invariants and allowing for de-coupled motions of ions and electrons, it can be shown that the reaction of electrons at the shock transition is different from that of the ions and just takes care of the main entropy generation, leading to suprathermal downstream electrons with an effective temperature of a few 10^6 K. This makes the downstream electrons appear as a mass-less fluid with a pressure that dominates the competing ion pressures. Under such conditions the downstream plasma flow on its way towards the tail will behave as an incompressible fluid and will influence the flow line geometry accordingly. We show that the expected tail collapse due to charge-exchange cooling of the tail ions will not happen due to the presence of these hot electrons.