

ELECTRON HEATING AND SURFING ACCELERATION BY ELECTROSTATIC WAVES IN CURRENT SHEET

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The electrostatic waves moving with phase velocity v_p may be excited through the magnetic reconnection in the solar flares. In the presence of an uniform transverse magnetic field B_z , the electrons trapped in the potential wall of electrostatic waves are accelerated in the outflow x direction of the current sheet plane (x, z) by surfing acceleration mechanism. It is found from test particle simulation that this acceleration process will discontinue, when the electrons de-trap from wave potential. However, the electrons heating by electrostatic waves in the current sheet are still generated, even if these electrons de-trap from wave potential.