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# Particle Acceleration due to Looptop Fast-Mode Shock above Coronal Soft X-Ray Loops

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The coronal looptop fast shock has been proposed as an efficient acceleration mechanism for the observed high energy plasma population during solar flares. Although the magnetic reconnection above the loop cusp region has been widely considered as the main energy source of high velocity electrons emitted in HXR range, an enenrgy discrepancy between the presumed reconnection outflow and the observed looptop and coronal footpoint HXR retrieved electron energy suggested a secondary acceleration mechanism. With the magnetic field geometry of coronal loops and the observations of high spatial and spectral resolution, a standing fast-mode shock above the soft X-ray (SXR) loops has been recognized and considered as the most viable accelerator among numerous proposed models. In this work we perform an one dimensional electromagnetic particle (1D EM PIC) simulation to study the looptop fast shock acceleration. The model we assumed in this work includes the influence of coronal SXR loops, which is considered as an obstacle that generates the reflected wave and plasmas. This consideration is more close to the real coronal looptop condition, since the conventional total reflective boundary condition excluded the considerable damping effect of SXR loops, and the dielectric characteristics of the boundary is simply replaced by the assimilated SXR loop.