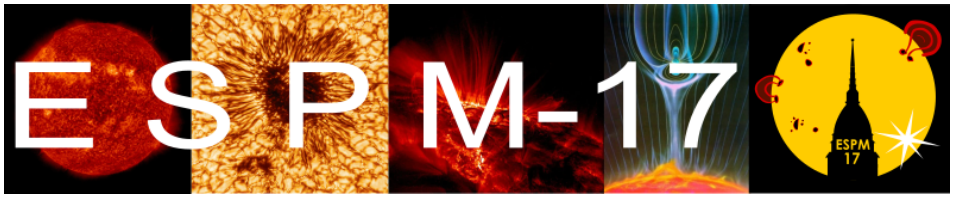

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Simulation of particle acceleration and transport in 3D turbulent reconnection regions

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Observation and simulation studies suggest that particles can be accelerated in the current sheet and above the loop-top during solar flares. Considering the flare process is a turbulent 3D phenomenon in reality, 3D models are crucial for understanding and interpreting particle acceleration in flares. Using the Stochastic Differential Equations (SDE) method to solve the Parker Transport Equation, we investigate electron acceleration in the current sheet and above the loop-top in a 3D simulation. We find that in the classical 2D model, in non-classical configurations, the shock distribution can also accelerate particles. However, in the 3D simulations, particles can still be accelerated to hundreds of keV but the particle acceleration capability is significantly reduced. After turbulence appears at the loop-top, the fragmented TS can still accelerate particles without the need for a stable TS as in the classical model. Additionally, we observe particle acceleration in the current sheet. These findings are significant for our understanding of particle acceleration in solar flares.

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