E108-P004 **Room: Poster Session Hall** **Time: May 22**

Fermi acceleration of Particles Trapped in Plasmoids Passing through the loop-top Fast Shock

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In the impulsive flare, hard energy spectrum of hard X-ray flux is often observed. Higher part of energy reaches 1-10GeV for protons, and 50-100keV for electrons. It is difficult to accelerate particles to such a high energy only in the current sheet, so we have to consider the secondary acceleration. Our purpose of this poster is to examine acceleration of high energy electrons at around the loop-top hard X-ray source. We developed the model of Somov & Kosugi (1997) and Tsuneta & Naito (1998), and assumed the first-order Fermi acceleration at the fast shock, using fractal structure of plasmoids in the downward jet colliding with the soft X-ray loop as mirrors of Fermi acceleration. We summarize the scenario as follows;

(i)Particle released from the magnetic reconnection collide with the fast shock at the top of the soft X-ray loop, trapped in the plasmoids in downward jet.

(ii)When plasmoids collide with the fast shock, two intersections of the fast shock with the field line of plasmoids form a single trap ahead of the shock.

(iii)As the plasmoids pass through the shock front, the trapping distance becomes shorter, the trapped particles are accelerated nonselectively, and the number of acceleration per seconds increases.

(iv)At last when the trapping scale becomes comparable to their Larmor radius, particles escape from the magnetic trap.

First we analytically showed that particles can be accelerated effectively, consistent with the observed impulsive bursts (less than 1s), since the particle energy in the collapsing trap follows the relation that E is proportional to L^{-2}, where L is the trapping distance. Secondly we investigated the particle orbits and their energy gain, and calculated the energy distribution spectrum with test particle simulation. Finally we will show that the superposition of the energy spectra of each fractally distributed plasmoid also forms the power law distribution.