

CSI 769 Fall 2010
Solar and Heliospheric Physics

Homework Assignment 6

Assignment Date: Nov. 04, 2010

Due Date: Nov. 11, 2010

1. Sweet-Parker Reconnection

Consider steady-state Sweet-Parker reconnection:

(1) Prove that

$$V_i = \frac{\eta}{l}$$

(2) Prove that

$$V_o = V_{Ai} = \frac{B_i}{\sqrt{\mu\rho}}$$

(3) Prove Sweet-Parker reconnection rate

$$M_i = \frac{V_i}{V_{Ai}} = \frac{1}{\sqrt{R_{mi}}}$$

2. Concept

(1) Succinctly describe in your own word, what is a solar flare?

(2) Succinctly describe in your own word, what is a coronal mass ejection?

Note: No more than three lines for each concept. There is no standard answer to these questions. This is to test your perception of complex phenomena.