Compressive vs. non-compressive heating

▷ We use the following equation of state to account for the fact that electrons' adiabatic index can vary from beginning to end of reconnection:

Equation of state for variable adiabatic index

$$const = \frac{p}{\rho^{5/3}}\left(\frac{3}{2}\Theta + \sqrt{\frac{9}{4}\Theta^2 + 1}\right), \Theta = \frac{kT}{mc^2}$$

▷ This allows us to remove the compressive component of the heating, which is not a result of heating due to the reconnection electric field

Electrons: heating analysis