A New Theory of Mixing Scale Selection: What Determines the Avalanche Scale?

- Staircase – co-existence of heat avalanches and ExB sheared flows – observed to form. How understand the emergence of step size, an outer scale for avalanches? → Heat Flux Jam!

- A key element in the theory → time delay between instantaneous heat flux and mean heat flux. The finite time delay allows heat flux waves as a new exciton, in addition to heat flux pulses.

- For long response time, pulses overtake heat flux waves and jamming happens.

- The scale for the maximal jam growth is predicted. The scale is typically about 10 correlation length, comparable to avalanche outer scales observed in simulations.