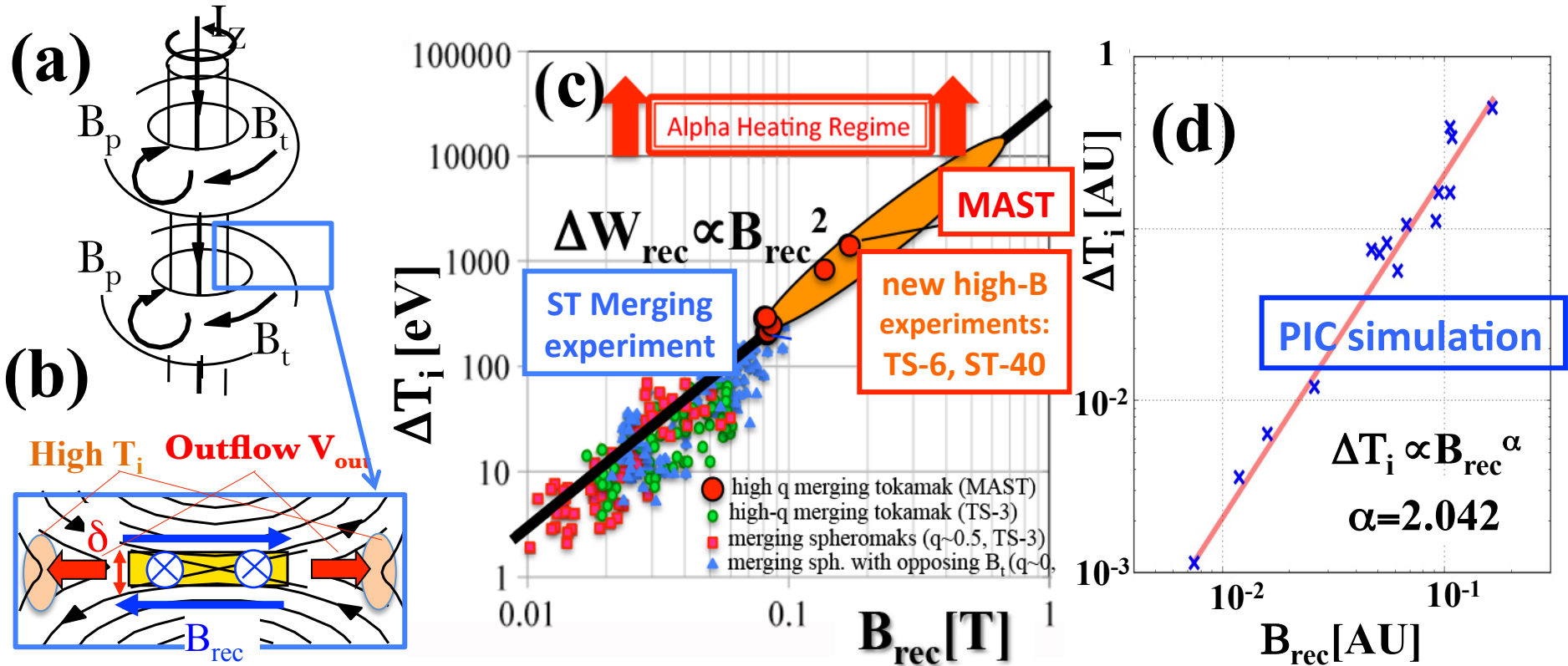


Y.Ono et al. Scaling Study of Reconnection/ Merging Heating of Spherical Tokamak Plasmas for Direct Access to Burning Plasma

The B_{rec}^2 -scaling of reconnection heating indicates a new direct access to burning plasma region without NBI, leading us to new high- B_{rec} experiments: ST-40 and TS-6.



Theoretical explanation:

$$v_{out} \sim v_{Alfven} \propto B_{rec} / n_i^{1/2} \Rightarrow \Delta W_{th} \sim \Delta W_{ion} \propto \Delta(n_i T_i) \propto B_{rec}^2, \text{ If } n_i = \text{const}, \Delta T_i \propto B_{rec}^2$$