

PARTICLE SIMULATION ON MERGING PROCESSES OF TWO SPHERICAL TOKAMAK-TYPE PLASMOIDS IN A CONDUCTING VESSEL (S. USAMI, ET AL.)

- By means of a new **particle simulation model (Fig.1)** which mimic the entire region of a poloidal surface in an ST, plasma merging processes are studied.
- Macroscopic viewpoints:
 - Ion heating is a global process as show in Fig. 2.
 - **Compressional heating** is dominant during merging, and **viscous heating** is dominant after merging.
 - While high-temperature region is spread due to diffusion/transport.
- Microscopic viewpoints:
 - The compressional heating consists of genuine heating due to compression and effective heating by **the Pick-Up-Like process**, while the viscous heating likely is based on a different type of effective heating.
- Our simulation results are in a good agreement with experimental results of TS-6 in University of Tokyo.

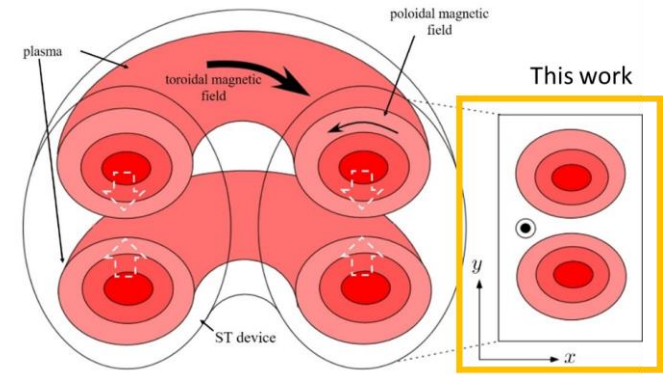


Fig.1: Particle simulation model

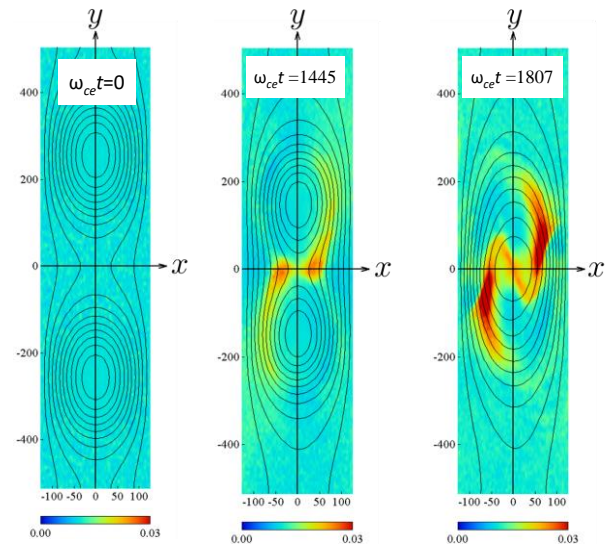


Fig.2: Ion temperature profiles (color contours) and poloidal field lines.