

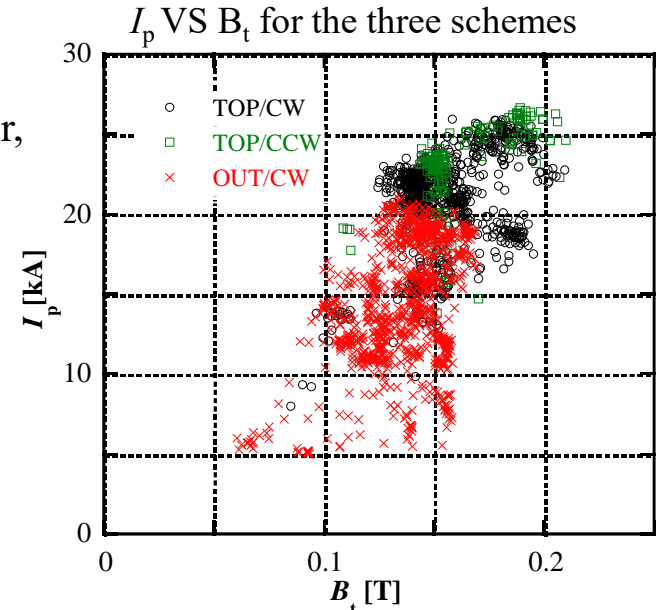
# Plasma current generation and ramp-up by the lower hybrid wave using outboard-launch and top-launch antennas on the TST-2 spherical tokamak

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## LHW Current Start-up and Sustainment

Two capacitively-coupled combline (CCC) antennas are installed, and compared. Top-launch schemes with CW TF and CCW TF (corresponding to bottom-launch scheme) show higher plasma current  $I_p$  than those by the outboard-launch scheme.



## Pre-ionization by AC Ohmic coil operation

AC Ohmic coil operation is a reliable pre-ionization tool, which can provide target plasmas for the LHW current start-up, and can replace ECH.

A new compact AC Ohmic coil is installed and its performances are compared with those by the original Ohmic coil. There is little difference in the breakdown loop voltage (non-zero  $I_p$ ), although the shape and the driven AC current are different.

