

High performance group

Group Leaders

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This group will conduct experiments to maximize performance of the LHD plasmas in deuterium experiments. We will primarily focus on realization of higher ion temperature and higher electron temperature plasmas. Specifically, we will conduct (1) experiments to clarify isotope effects on the confinement characteristics of high temperature plasmas with temperature internal transport barriers (ITBs), and (2) experiments to expand the simultaneous achievement regime of high ion temperature and high electron temperature. Among the trials for maximizing the performance of the LHD plasma, experiments aiming at realizing plasmas with higher fusion triple product, higher stored energy, and higher neutron generation are conducted in cooperation with the other three groups. Also, calibration and adjustment of diagnostics and heating devices will be carried out by this group.

Main Research Topics

1. Studies to clarify isotope effects on confinement characteristics of heat, particle, and impurity in high temperature plasmas with temperature ITBs.
2. Scenario optimization study for extension of high ion temperature regime.
3. Scenario optimization study for extension of high electron temperature regime.
4. Scenario optimization study for expansion of simultaneous achievement regime of high ion temperature and high electron temperature.
5. Studies aiming at realizing plasmas with higher fusion triple product, higher stored energy, and higher neutron generation.

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