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## PD/P8-22: Dynamics of Pedestal Rotation and Ion Temperature Profile Evolution in KSTAR H-mode Discharge with RMP

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Pedestal rotation profiles are of great importance for ITER, in the multiple contexts of confinement enhancement, the source of intrinsic torque in H-mode, and their response to ELMs and to ELM mitigation techniques. In this paper, we report on findings from charge exchange spectroscopy (CES) studies of toroidal rotation and ion temperature profile structure and evolution in KSTAR H-mode pedestal plasmas, both without and with RMP. We emphasize pedestal profile structure, profile evolution at the L→H and H→L transitions and during ELMs, and rotation profile evolution during RMP. We remark that despite the plethora of data concerning density and temperature pedestals, rather little information and understanding of toroidal rotation profiles are available.

The target discharges we analyzed in this work are typical H-mode plasmas on KSTAR: the plasma current is , the line integrated density , and the NBI heating power 1.44MW. The CES diagnostic system was used to measure the ion temperature profile and the toroidal rotation profile of carbon impurity on the H-mode plasmas. With 5 Hz NBI modulation, the CES system allows us to measure the profiles with 5mm spatial resolution and 10 msec time resolution.

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