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Characteristics of hybrid scenarios in KSTAR YOUNGHO LEE, CHEOL-SIK BYUN, YONG-SU NA, Seoul Natl Univ, KSTAR TEAM — We report the characteristics of hybrid scenarios under development in KSTAR. Firstly, detailed definition of the hybrid scenario in KSTAR is described and categorized according to the MHD activities. The discharges exhibiting $H_{89} > 1.9$, $\beta_N > 2.2$ sustained more than $5 \tau_E$ at $q_{95} < 6.5$ without or mild sawtooth are classified into the hybrid regime. Fishbones and neoclassical tearing modes are usually observed in this regime. Improved confinement in this regime is also confirmed with comparing general H-mode in KSTAR. Secondly, several experimental approaches are presented to access the hybrid regime. Here, four different recipes are described. Thirdly, the origin of the confinement enhancement is discussed. The role of the plasma rotation is found to be small in experiments where electron cyclotron heating is applied to reduce the toroidal rotation. The pedestal enhancement is thought to be the main reason for the confinement improvement in KSTAR hybrid scenarios.

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