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Overview of MARFE along Improved confinement mode in ohmic and LHCD plasmas with graphite limiters on HT-7 tokamak M. ASIF, COMSATS Institute of Information Technology, Pakistan, and Institute of Plasma Physics, Chinese Academy of Sciences, P.R. China, HT-7 TEAM — MARFE phenomena along Improved confinement mode in ohmic and LHCD Experiments with new graphite limiters on the HT-7 tokamak are summarized. The best correlation has been found between the total input (ohmic + LHCD) power and the product of the edge line average density and Z_{eff}. Studies show that the critical density of MARFE onset is observed in the region of ${Z_{eff}}^{1/2} f_{GW} = 0.9 \sim 1.2$, for ohmic and ${Z_{eff}}^{1/2} f_{GW} = 0.6 \sim 0.9$ for LHCD Plasmas, where$f_{GW} = \frac{\bar{n}_e}{n_{GW}}$, (Here $\bar{n}_e$ is the maximum line average electron density and n_{GW} is the Greenwald density). Improved confinement mode induced by a MARFE is observed, and it is maintained for about 90 ms for ohmic and about 65 ms for LHCD plasmas. MARFE cools the plasma edge, and the electron density profile is observed to become more narrow and peaked.

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