

Abstract Submitted
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The Enhanced Pedestal H-mode in NSTX¹ R. MAINGI, Oak Ridge National Lab, R.E. BELL, D.A. GATES, S.M. KAYE, B.P. LEBLANC, J.E. MENARD, Princeton Plasma Physics Lab, S.A. SABBAGH, Columbia U., F. LEVINTON, H. YUH, Nova Photonics, THE NSTX TEAM — Typical H-mode pedestal temperatures in NSTX range from 100-300 eV. A new operating regime has been observed in which the pedestal ion temperature increases to ~ 600 eV in about 50ms, or one energy confinement time, resulting in a global confinement improvement. Ion temperature gradients as high as 30 keV/m are observed. The regime is correlated with a braking of the edge toroidal rotation, in which case the pressure gradient term in the radial force balance becomes dominant over the toroidal rotation term. Present analysis indicates that these discharge scenarios have a very low central current density, possibly leading to a reduced normalized beta limit ~ 4.5 (%-m-T/MA). The observed characteristics of this scenario will be presented.

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