

Abstract Submitted
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Improved H mode with flat central q profile on EAST¹ HAIQING LIU, YAO YANG, XIANG GAO, LONG ZENG, JINPING QIAN, XIANZU GONG, BAONIAN WAN, Institute of Plasma Physics, Chinese Academy of Sciences, WEIXING DING, DAVID LYN BROWER, Department of Physics and Astronomy, University of California Los Angeles, EAST TEAM — High betaN (~ 1.8) plasma with good confinement ($H_{98y2} \sim 1.1$) on EAST tokamak has been reported recently. These ELMy H-mode plasmas with $B_t = 1.6T$, $I_p = 400$ kA and $q_{95} \approx 4.5$ were heated by lower hybrid wave and neutral beam injection. The internal transport barrier (ITB) and edge transport barrier (ETB) are both observed with $m/n=1/1$ fishbone, which were identified to clamp central q at values close to unity. Implying an improved H-mode with flat central q profile and absence of sawteeth, like other devices. Accurate q profile, key profile for developing scenarios aim at high performance H mode, were derived by Polarimeter-interferometer (POINT) measurement as constraint. Base on the optimized current profile, better confinement ($H_{98y2} \sim 1.4$) with an electron ITB was obtained also with flat central q profile and absence of sawteeth at high betaP (~ 2) regime with $B_t = 2.5T$, $I_p = 400$ kA. Both high betaN regime and high betaP regime H mode, are characterized by a stationary flat central q profile $q_0 \geq 1$, but typically close to 1, absence of sawteeth, $H_{98}(y,2) > 1$ and simultaneously, with ITB.

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