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Electron heat transport in EAST steady-state H-mode discharges with a weak electron internal transport barrier[1] H. DU, S. DING, J. CHEN, Y. WANG, H. LIAN, H. LIU, Q. ZANG, B. LYU, Y. DUAN, G. XU, J. QIAN, X. GONG, Institute of plasma physics, Chinese Academy of Sciences — The global confinement (H_{98}) increases with the internal inductance (1.0˜1.2) in the recent steady-state H-mode discharges, which exhibit a weak electron ITB started at $\rho = 0.4$ in EAST. After turning off ECRH, the stored energy decreases by ˜30% in 2.5 s. Calculations suggest that both the lower hybrid electron heating and driven current move from the core to large radii after turning off ECRH. Power balance analysis show that the LH deposition profile shift from just inside the ITB to outside the ITB after ECRH termination appears to be responsible for the marked drop in stored energy. The slow stored energy decrease is believed to be connected to the long plasma current profile relaxation time. Linear gyrokinetic simulations indicate increasing low-k instability growth rate from small to large radii, which is consistent with the reduced diffusivity within the ITB. The calculations also show that the CTEM dominate within the ITB, ETG modes grow rapidly outside this region, and that ITG modes dominate near the pedestal top.

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H. Du
Institute of plasma physics, Chinese Academy of Sciences

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