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Progress of long pulse operation with high performance plasma in KSTAR YOUNG BAE, National Fusion Research Institute, KSTAR TEAM — Recent KSTAR experiments showed the sustained H-mode operation up to the pulse duration of 46 s at the plasma current of 600 kA. The long-pulse H-mode operation has been supported by long-pulse capable neutral beam injection (NBI) system with high NB current drive efficiency attributed by highly tangential injections of three beam sources. In next phase, aiming to demonstrate the long pulse stationary high performance plasma operation, we are attempting the long pulse inductive operation at the higher performance (MA plasma current, high normalized beta, and low q95) for the final goal of demonstration of ITER-like baseline scenario in KSTAR with progressive improvement of the plasma shape control and higher neutral beam injection power. This paper presents the progress of long pulse operation and the analysis of energy confinement time and non-inductive current drive in KSTAR.

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