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Technical issues toward the steady state operation at KSTAR

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Fusion reactor needs the steady state operation and sustaining the long pulse operation beyond transient period in term of physics and engineering parameters is essentially one of key requirements in present non DT operation tokamaks.
Recently, KSTAR reported the long pulse operation beyond 1 miniute at the injected power of about 5 MW and the plasma current of 0.5 MA. The normalized beta is about 1.5 and the total injected energy to the plasma reaches to about 300 MJ. It is shown that the bootstrap current fraction is below 40% and the discharge is interrupted by the surface temperature rise at in-vessel coil current other than physics issues.
In this talk, technical issues for extending to 100s operation with injected power of 12 MW and the plasma current of 1 MA in KSTAR are discussed in heating, plasma facing components and diagnostic system conjecting from present data of 60s operation and preparation efforts are shown.

Eligible for student paper award?

No

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