Abstract Submitted
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Research Progress and Future Plan of the KSTAR[1] YEONG-KOOK OH, NFRI, H.K. PARK, UNIST, S.W. YOON, J.G. KWAG, Y. CHU, K.R. PARK, NFRI, KSTAR TEAM TEAM, KSTAR RESEARCH COLLABORATORS COLLABORATION — Unique capabilities of the Korean Superconducting Tokamak Advanced Research (KSTAR) have been fully capitalized for steady state operation of high beta plasmas and fundamental physics research. The KSTAR is ideal for study of the tokamak plasma symmetry on stability and confinement study owing to the lowest error field and magnetic ripple. Versatile magnetic perturbation tool with n=1,2 in-vessel control coils has been extensively used in control of the harmful MHD such as the ELMs and toroidal rotation through NTV. Advanced 2D/3D microwave imaging diagnostics for undisputed measurements for theory and modeling. In 2016 and 2017 campaigns, KSTAR has achieved a record long operation (34s) of a ELM-crash free as well as long ELMy (70s) H-mode operation. A predictive capability as well as the underlying physics of the resonant magnetic perturbation (RMP) have been demonstrated. This talk will address the advances in research and vision toward the high beta long pulse operation in KSTAR together with the upgrade plan.

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